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The Tumuli West of Jerusalem

Survey and Excavations, 1953*

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THE group of tumuli[1] conspicuously situated on hill-tops and ridges west of Jerusalem have changed the natural outlines of the landscape and form in themselves a puzzling problem in Palestinian archaeology. A singular phenomenon, these tumuli have attracted the interest of explorers and archaeologists ever since the days of the Palestine Exploration Fund Survey, but not much exploratory work has been done on them, either by way of archaeological survey of the region or by excavation. After the trial excavations of Professor Albright in tumulus No. 2,[2] Père Vincent pointed out[3] that no tradition whatsoever was connected with the tumuli, nor had any etymological interpretation of a popular kind been preserved among the local inhabitants to

* A preliminary report in Hebrew was published in *BIES*, 18, 1954, pp. 45-59, Pls. 9-10. A short communication was delivered to the Assyriological section of the 23rd International Congress of Orientalists held at Cambridge in 1954 and published in the *Proceedings* of that Congress, pp. 144-145.

[1] In the Hebrew report the word *regem, regamim* was used, taken from the Arabic *rujm*. I had to resist the temptation to use the biblical term *gal*, which from the stories of Achan (Josh. vii, 1, 26) and Absalom (2 Sam. xviii, 17) seems to denote the concept of the Latin *tumulus*. Cf. also the interpretation of the term *gadish* (גדיש) in Job xxi, 32.

[2] W. F. Albright: Interesting Finds in Tumuli near Jerusalem, *BASOR*, 10, 1923, pp. 1-3.

[3] L.-H. Vincent: Chronique, I: Fouilles de l'École américaine, *RB*, 33, 1924, pp. 420-421.

assist or guide the explorer. The scantiness of surface sherds was another obstacle in the way of the modern archaeological survey.

The excavations undertaken in 1923 by Albright in tumulus No. 2 had unfortunately to be discontinued after five days' work with 25 men. The short report by the excavator and the *Chronique* by Père Vincent mentioned above sum up the results: a section, five metres broad, was begun diametrically through the tumulus, starting from the top; it did not reach the bottom, nor was any building or wall uncovered. The excavation showed, however, that the tumulus was neither of the Neolithic period nor of the Bronze Age, as had been expected, but of Iron Age date. From the small quantity of sherds found among the stones, Albright, Vincent, and Phythian-Adams were all inclined to assign the tumulus to the 12th to 11th centuries B. C. They saw in the whole phenomenon the influence of some foreign conqueror—the Philistines or some other ethnic group of the Sea Peoples.

On a trip through central Anatolia with the 22nd International Congress of Orientalists in 1951, the author was much impressed by hundreds of similar tumuli—a typical feature of Phrygian culture[4]—covering large areas. This suggested a resumption of the work started west of Jerusalem some thirty years earlier; and in 1953 excavation was begun, on behalf of the Department of Antiquities and the Israel Exploration Society.[5]

SURVEY AND MAPPING

The preparatory work for the excavation proved that a thorough new survey and exact mapping were required, as all existing maps were far from satisfactory.

The survey and mapping of the tumuli area were only partially completed during the season of 1953, and much more work is still required. To avoid confusion and in the absence of authentic names for all the tumuli, the 19 tumuli surveyed

[4] Cf. e. g. H. H. von der Osten: *Explorations in Central Anatolia, Season 1926*. Chicago, 1929, esp. pp. 28-31, 46-49; and the reports of the Gordion excavations in *AJA* from 1955 onwards.

[5] We are indebted to the Ministry of Labour which provided the necessary labour for both seasons of excavation. Sincere acknowledgements are also made to Mr. S. Yeivin, Director of Antiquities, for his kind permission to publish this report here; to Mr. J. Aviram, Secretary of the Israel Exploration Society; Mr. A. Hiram, of the Department of Antiquities, who drew most of the plans; Mr. S. J. Schweig, who took most of the photographs; Mrs. H. Bieberkraut, who photographed the finds; Messrs. N. Leef and A. Gluck, who prepared the enlarged maps; the Photogrammetric Institute, Jerusalem, for its assistance in mapping the area; Mr. A. Feierstein, who first drew my attention to the tumuli near Beth Zayit; Mrs. P. Levinger, who drew the pottery; and Mr. A. Feinberg, then a student at the Hebrew University, who took an active part in the second season.

and mapped in the three accompanying maps (Figs. 2-4) were numbered. The general map (Fig. 1) shows the location of the three areas surveyed: areas A and B between Menaḥat (Malḥa) and 'Aminadav; area C on the hill of Beth Zayit. More surveying is required not only in the regions north of the Rephaim Valley, but also on the hills to the south of it—the 'cairn' marked on the PEF map to the north of Beit Jala may possibly belong to this type of tumulus.

The information gathered in our survey is shown in Table 1 below.

TABLE 1

Tumulus No.	Height in m.	Diameter in m.	Name in PEF map	Name in the 1:20,000 map
1	2.8	14	Atiyeh	—
2	7.5	30	Afaneh	—
3	5	18	Barish[a]	—
4	9	42	Tarud[b]	Tarud
5	6	32	×[c]	—
6	2-7	7×12[d]	×	—
7	4.5	20	Duribeh	—
8	1.5-2.5	26	—	—
9	3.6	15	Deir	—
10	2	7	×	—
11[e]			—	—
12	3.5	25 (length)	—	—
13	4	10	—	—
14	2.5	7	—	—
15	2	7	—	—
16	2.5	7	—	—
17	2-7	5×9[d]	—	—
18	3	9	—	—
19	4	10	—	—
Gizo	7	22	Jiz	Jiz

a) The name Barish is assigned by the PEF map apparently to our No. 3; Albright, however, assigned it to our No. 2, having learnt it from the local inhabitants.
b) It is not clear to which of the three tumuli, Nos. 4, 5, or 6 the name Tarud is assigned on the PEF map.
c) The sign × means that the tumulus is both shown on the map and mentioned in the *Memoirs* of the PEF, but without a name.
d) The base forming an ellipse.
e) Tumulus No. 11 is at present not accessible.

Most of the tumuli are built, or rather heaped, on ridges well above the level of their surroundings and overlook far distances (Nos. 1, 2, 4, 5, 7, 8, 9, 11, 12). Those situated on saddles and slopes (Nos. 3, 6, 10) are conspicuous at least from one direction, from the bottom of the valley (Nos. 3, 6). Most characteristic and common to them all is the shape—a truncated cone with a small flat area on the top, and steep slopes (see Pl. 38A).

During the survey we made great efforts to collect some characteristic sherds from each tumulus; but it was the pottery found while excavating tumuli 5, 6, and 4 that served to date the few sherds picked up on the unexcavated tumuli. It is interesting to note that sherds are also scattered in the vicinity of each tumulus, and not only on its slopes.

Tumulus No. 8 requires a separate description, on account of its different shape. We would not have noticed its existence at all, had we not learned how No. 5 was made (see below, p. 218). No. 8 is a platform about 26 m. in diameter

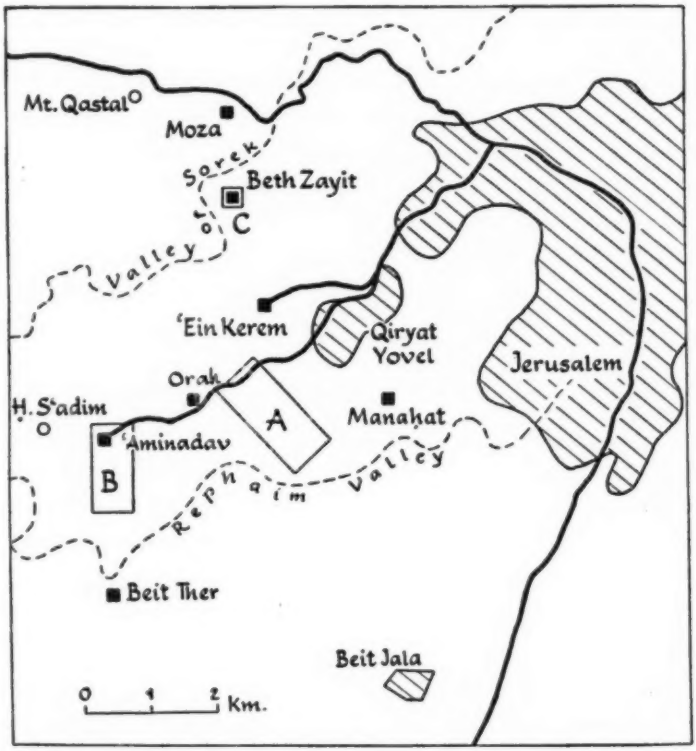


Fig. 1. Tumuli area west of Jerusalem. For areas A, B, C, see Figs. 2-4.

and only c. 2 m. high. In the eastern part of the circle is a small hillock, about 2.5-3 m. in height. From the results of the excavations in No. 5 we may perhaps surmise that No. 8 is an unfinished tumulus, left in the stage before the covering or rather heaping was done. This would corroborate our conclusion about the way the tumuli were built.

Tumulus No. 12 too is of different shape (an elongated hillock), and it is therefore doubtful whether its inclusion in this series is justified. The steep slopes all around it make it, however, resemble a tumulus.

Last on the list in Table 1 is tumulus Gizo *(Rujm Jiz)*, which also deserves a special note. It was not numbered in the list mainly on account of its great distance from the area of the tumuli with which we deal here. Whereas the tumuli to the west of Jerusalem are confined to an area less than five kilometres in length, tumulus Gizo is situated in the Shephelah hills twenty kilometres WNW of the Jerusalem group (at ref. 14421347). Although some of its features differ from those of our tumuli, its essential character makes its assignment to the same type not improbable. The special features are: its

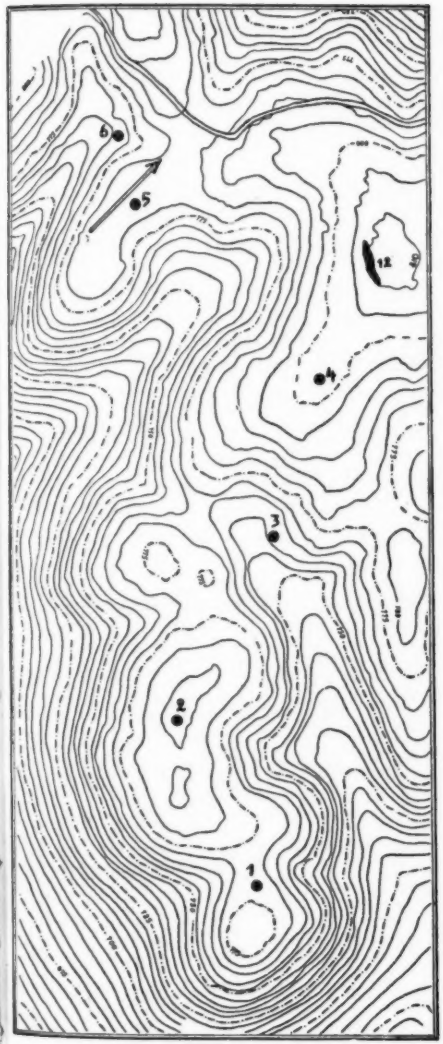


Fig. 2. Area A.

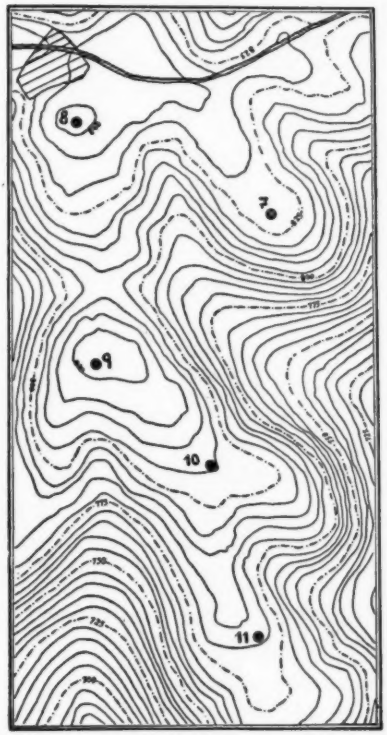


Fig. 3. Area B.

slopes are not as smooth as those of tumuli Nos. 1-19; it seems to consist of much larger stones; four walls, forming a large rectangle hidden beneath the heap of stones, may be traced at about two-thirds of its height. This might have been the reason for the opinion expressed by some scholars that these are the ruins of a fort, which once controlled the main Shephelah roads.[6] In other respects, however, this tumulus is similar to our group: its shape and measurements, its conspicuous situation on the crest of the ridge, and the date as indicated by the few Iron Age sherds picked up on its surface. It has to be admitted that the sherds collected do not permit a closer dating; only excavation can elucidate this problem.

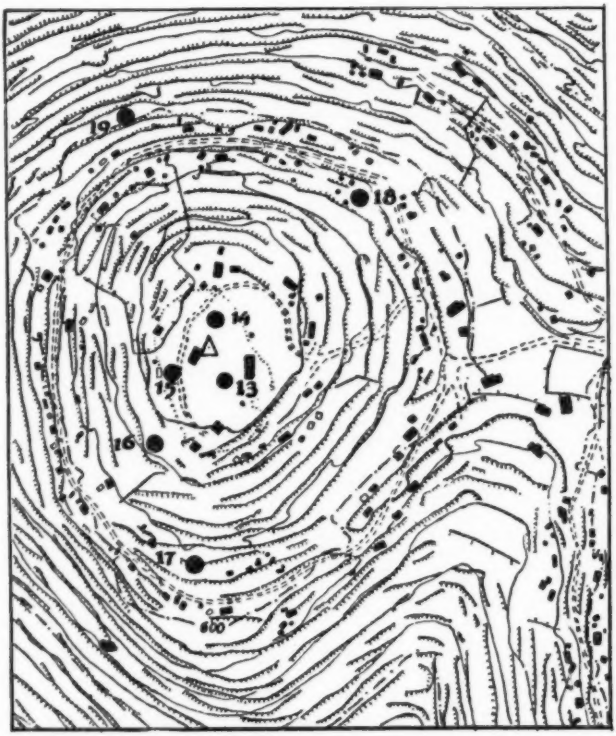


Fig. 4. Area C.

[6] The PEF surveyors (C. R. Conder & H. H. Kitchener: *The Survey of Western Palestine, Memoirs* II. London, 1882, p. 428) and some other scholars expressed this view.

THE EXCAVATIONS

Our original plan was to go back to Albright's unfinished work on tumulus No. 2, but it had to be abandoned because of the great distance of that tumulus from the main road. Instead, we decided on tumulus 5, which resembles No. 2 in size and in situation on the crest of a ridge.

During the first part of the 1953 season, which began on 6 June and lasted for two and a half months, work was concentrated on tumulus 5. We went back on 1 November for about a month; during this time the excavation of No. 5 was completed and that of No. 6 started; a small trial sounding on No. 4 was also made.

Tumulus 5

(Plan, sections, and details: Figs. 5-9, Pls.37, 38 B-C, 39)

Guided by the analogy of the Anatolian tumuli and by Albright's demonstration in tumulus 2 that it is a heap of stones and not a stratified deposit, we thought it more useful and logical to start the section from the base of the tumulus and not from its top. A section, 5 m. wide, was accordingly demarcated from SSW to NNE, and work was begun from the SSW end level with the surface outside the tumulus. The excavation proceeded as follows: on the very first day the ring-wall was touched upon; during the following weeks it was excavated all around. The section had to be cleared to the rock, and only in the course of widening it eastwards did the 'platform', situated excentrically in the eastern quarter of the circle, come to light. Simultaneously the eastern flight of steps was discovered; and lastly, the entrance in the WNW.

The following description of the results will be given in the chronological order of the phases in the life of the site.[7]

The first operation to have taken place on the crest of the ridge seems to have been the installing of the 'platform', so called for want of a better name. Not much clearing and hewing of outcropping rock had been done before that. The platform was erected on the rough rock at the edge of a terrace, from which the slope drops steeply to the valley. The eastern part of the platform was built on a fill supported by a leaning wall (18) which had to be built to make the area of the platform level. The wall is dry built of small field-stones. The platform consisted of an elongated rampart (19), a small stretch of pavement (20), a pit (21), and a place for burning (22). The rampart was

[7] See the general plan (Fig. 6), where each item is shown with its number.

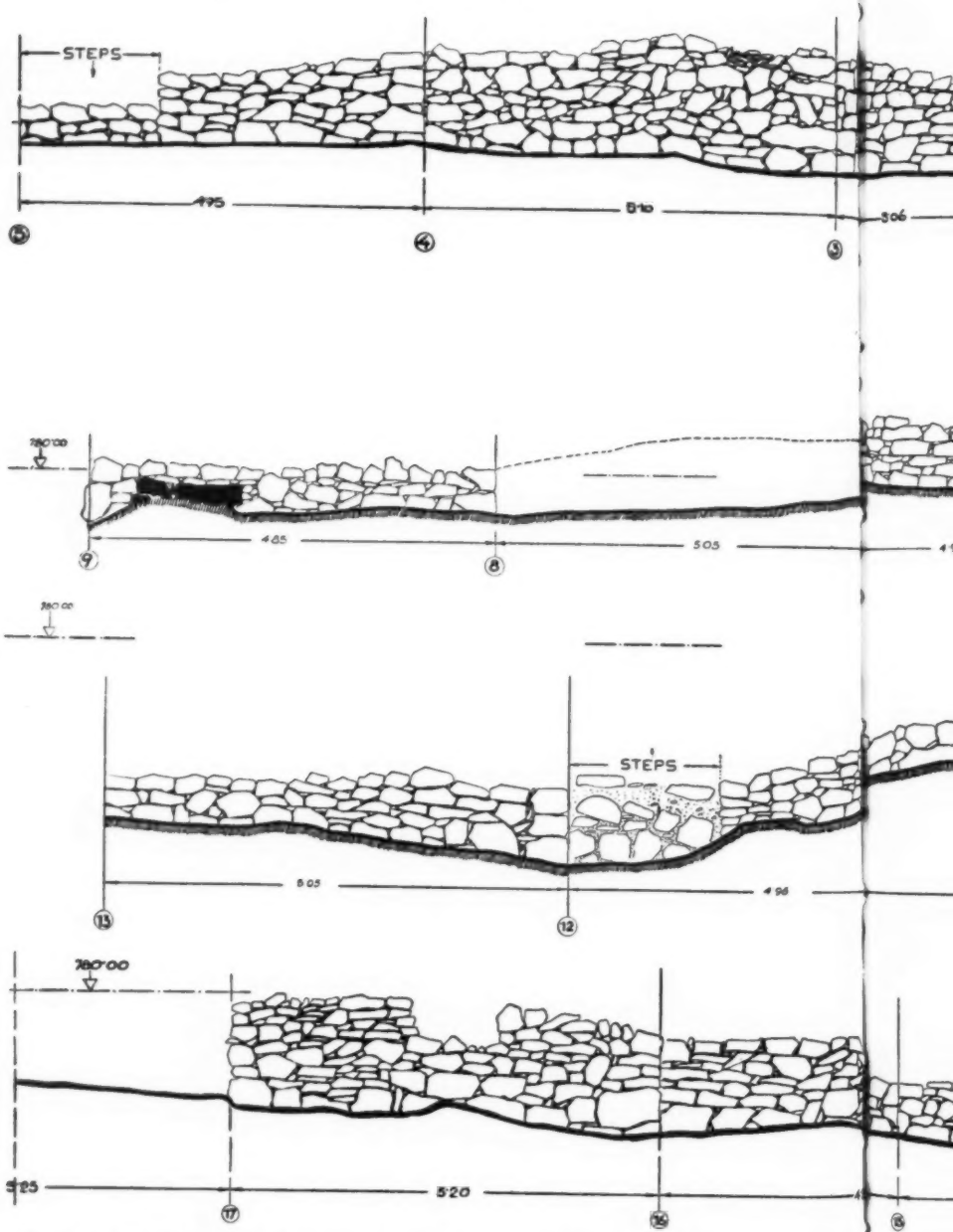
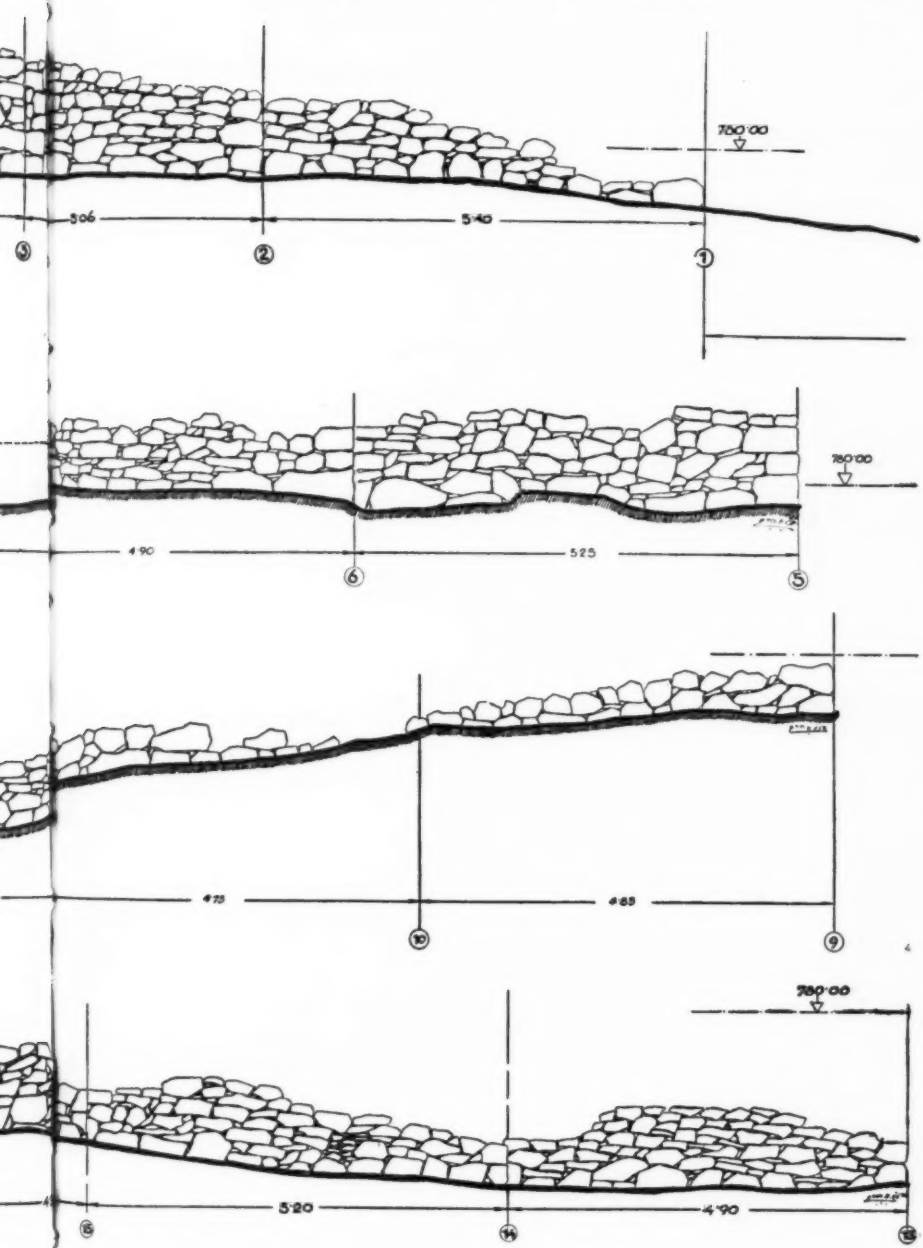


Fig. 5. Tumulus 5: Elevation of the ring-wall with its seventeen sides and 'angles'.


780·00
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made of red earth and stones, with a maximum height of 0.3-0.35 m. above the level of the pavement to the east. The pavement consisted in the main of two rows of flag-stones of the whitish chalky type of soft stone. The pit (0.9 m. deep) was cut in the artificially accumulated earth and stones. It is hexagonal in shape, and its walls are lined with flag-stones of the same type of stone

Fig. 6. Tumulus 5: Plan.

as the pavement. The pit is encircled on the west and north by the rampart, and on the east side by the pavement. The pit was found full of well-silted earth, without any sherds or bones; only very small particles of charcoal could be distinguished in it. On the south-eastern slope below the 'platform' was found an area full of burnt debris, charcoal pieces, burnt animal bones, and black earth saturated with fat; even the stones found there were blackened. Most of the sherds collected from this tumulus were found around here. The fragments of the cooking pot (Pl. 40A) were found on the sloping rock, immediately below the burnt spot (22).

Simultaneously with the platform was built the ring-wall with its angles (numbered 1-17 on the plan, Fig. 6). The ring-wall is the only detail of the tumulus which may be called architecture. The method by which this 17-sided ring-wall was shaped indicates a good knowledge of engineering on the part of the builders and familiarity with the technique of dry building. The wall must have been erected with each side succeeding the other in an anti-clockwise sequence. Each side of the polygonal wall projects from the succeding one by the width of one stone. These are, therefore, not true angles. All 17 sides are approximately 5 m. long (see Fig. 5). The wall is made of almost unhewn

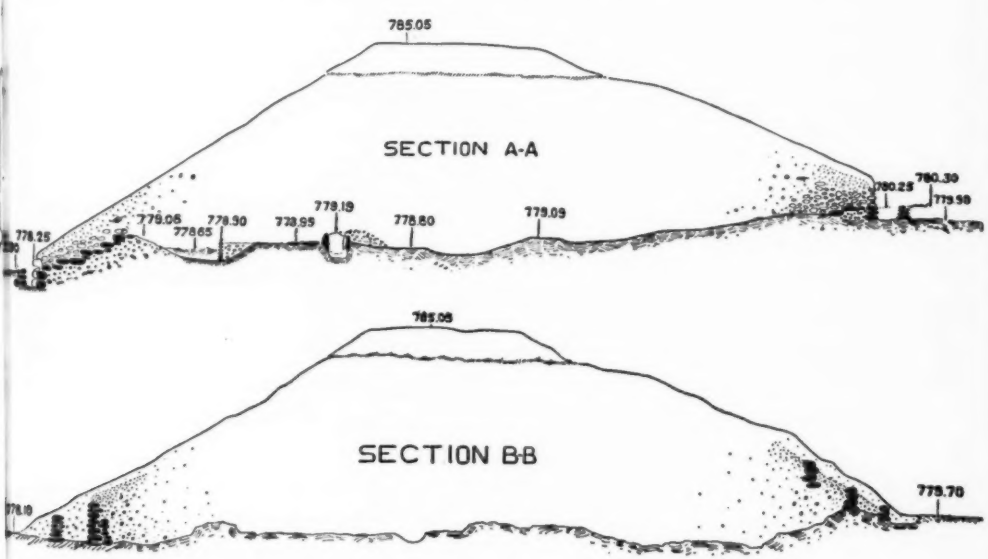

Fig. 7. Tumulus 5: Sections.

field-stones. Only the re-entrant angles are made of larger and better dressed stones, which impart stability to the dry masonry. The wall has only one facing, the outer one. Its thickness, though hard to make out, varies between 1.4-1.6 m. The height of the wall varies between 1.45 m. (in the stretch between angles 3 and 4) and 0.25 m. (between angles 9 and 10). The wall is founded on the rock and follows its slope towards the valley on the east. For some inexplicable reason it was built higher on its western and northern sides, which are naturally on a higher level, and much lower on the eastern and southern sides, where the rock is lower. The three angles 14, 15, 16 are somewhat peculiar: each angle is made of two 'storeys' not exactly overlapping. This device was probably meant to give more strength to that part of the wall situated on sloping rock.

The ring-wall is furnished with two entrances giving access to the inside of the enclosure. The one (23 on the plan; see Fig. 8) is oriented due east in the low part of the wall, and the other (24; see Fig. 9) in the higher part of the wall, on the WNW-side. Both adjoin angles.

The eastern entrance, next to angle 12, leads straight to the platform or rather the pit. It consists of five steps built on top of the whole thickness of the wall and beyond that, extending over a stone filling thrown against the wall as a support for the steps. This stone filling levels the ground between the platform, that is to say between the supporting wall (18), and the steps. The pavement (20) and the uppermost step are nearly on the same level. This stone filling is therefore logically part of the first phase of activities on the site—as are all the items so far described—in spite of the fact that it is very similar in character to the stone heaping of the tumulus proper, which belongs to a later phase.

The western entrance, next to angle 5, was built into the thickness of the wall, which is here about 1.6 m. It consists of only two shallow steps leading down to the level of the rock within the enclosure. This entrance was found blocked with neatly laid courses of stone, which will be described below.

The last item of the first phase, which, however, does not show any clear organic connection with those described above, is the stone fence on the southern side of the enclosure (25). It was made of large field-stones planted into the shallow surface soil.

The place was thus prepared for ritual acts, the nature of which escapes us. Only one feature seems definitely to have been part of that rite, namely the burning of some sort of organic material; this activity may have been either cooking or sacrificing.

The last phase of the tumulus consisted of two stages. The first involved the blocking of the western entrance (we could not ascertain whether the eastern suffered the same fate, because the wall is so low there) and the building of

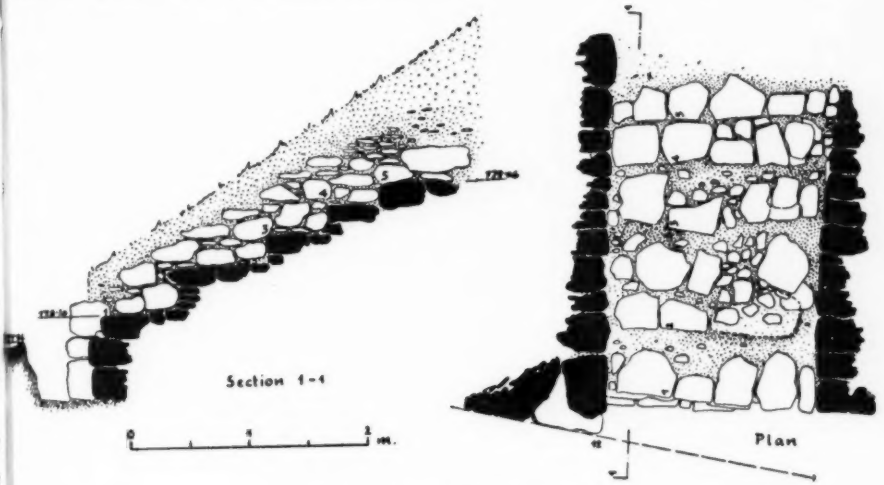

Fig. 8. Tumulus 5: Eastern entrance.

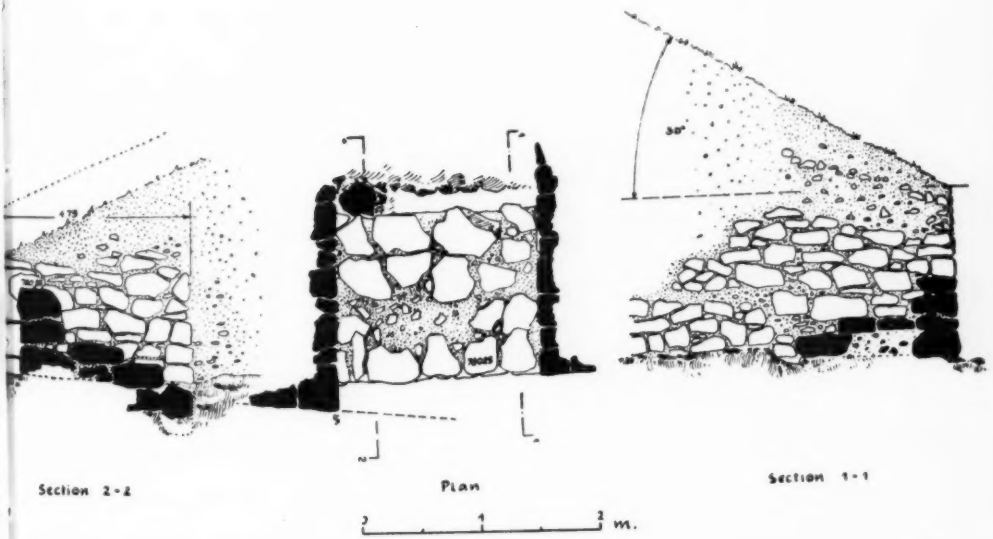

Fig. 9. Tumulus 5: Western entrance.

additional narrow ring-walls, encircling great parts of the main wall. The one nearer the main wall runs, as is shown on the plan, in great stretches along the latter. It is one stone thick and has no projecting angles. As it disregards both entrances, or rather hinders their functioning, we may rightly assume that it belongs to the later phase. Of the outer narrow wall only small fragments have been recovered.

The second stage of the last phase is the heaping-up of the tumulus proper. This heap of loose stones, a little over 6 m. high, was found almost devoid of earth. The field-stones rolled down with every touch of the pick.

The quantity of potsherds collected during the whole excavation was relatively small. Besides those found in the area of the platform and especially in the burnt place, we picked up some sherds among the stones of the heap; they were dispersed over the whole height of the tumulus. Yet there was one important detail to be noted: relatively more sherds were picked up in the eastern half of the heap than in its western. A corresponding difference could be noticed in the heap itself: its western half was on the whole composed of larger stones than the eastern. Bearing in mind our conclusions concerning the unusual shape of tumulus 8 (above, p. 208), the method and sequence of heaping a tumulus may thus be reconstructed with some probability. First, a small tumulus was heaped rather carefully over the platform and immediately around it; then followed the making of the large tumulus. The centre of the latter was moved from that of the smaller heap to that of the enclosure.

The pottery of this tumulus will be dealt with together with that from tumuli 6 and 4 (below, pp. 221-226).

Tumulus 6

(Plan and section: Figs. 10-11)

Simultaneously with the final clearances made in tumulus 5 during the last few weeks of the 1953 season, we turned our attention to the nearby small tumulus No. 6, situated only about 150 m. from No. 5.

The elliptical shape of this tumulus and its uneven height are caused by its topographical position: it lies on the slope at the head of the wadi-bend. Its height at the back is only 2 m.; but at the front, i.e. from the bottom of the valley looking upwards, it is 7 m. high and very conspicuous. During the excavation the configuration of the rock beneath the tumulus became clear, and we can now see that the terraces on both sides of the tumulus and on its back

are not only later, but depend on its existence, as its erection broke the natural line of the wadi slope.

The topographical position is also responsible for the inner construction of this small tumulus. The plan and section (Figs. 10-11) show clearly that instead

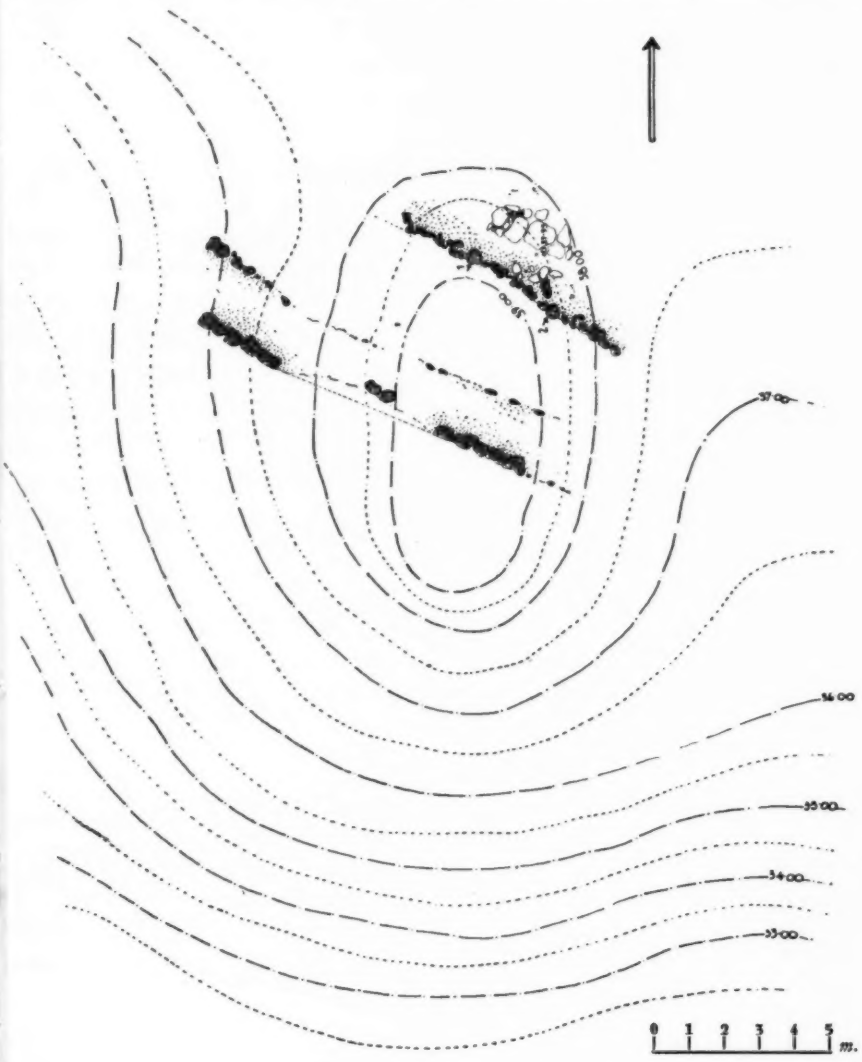

Fig. 10. Tumulus 6: Plan.

of a polygonal enclosure encircling the platform, here a long wall closes the wadi-bend at the bottom end of the tumulus. In the upper part of the wadi, near the upper end of the tumulus, we found another wall (Fig. 12), of similar workmanship as the ring-wall of tumulus 5, with one 'angle' of the same type. This wall seems to be the counterpart of the supporting wall (18) of tumulus 5, for above it were found four large, roughly dressed slabs, similar in kind and make to the slabs of the pavement (20) of that tumulus. They are bordered with field-stones planted around the platform. No interment was found under these slabs, only natural soil.

The clearing of tumulus No. 6 was not completed in 1953, and the absence or presence of a tomb has still to be proved by further excavation.

This tumulus yielded more potsherds than No. 5; they will be discussed together with the pottery from tumuli 4 and 5.

Trial Sounding in Tumulus 4

Tumulus No. 4 is the largest in the whole group: it is 9 m. high and 42 m. in diameter (see Pl. 38A). It is situated due east from tumulus No. 5, on the next ridge.

A short trial sounding in its western side brought to light a section of ring-wall including one of its angles. Working according to the same method as in

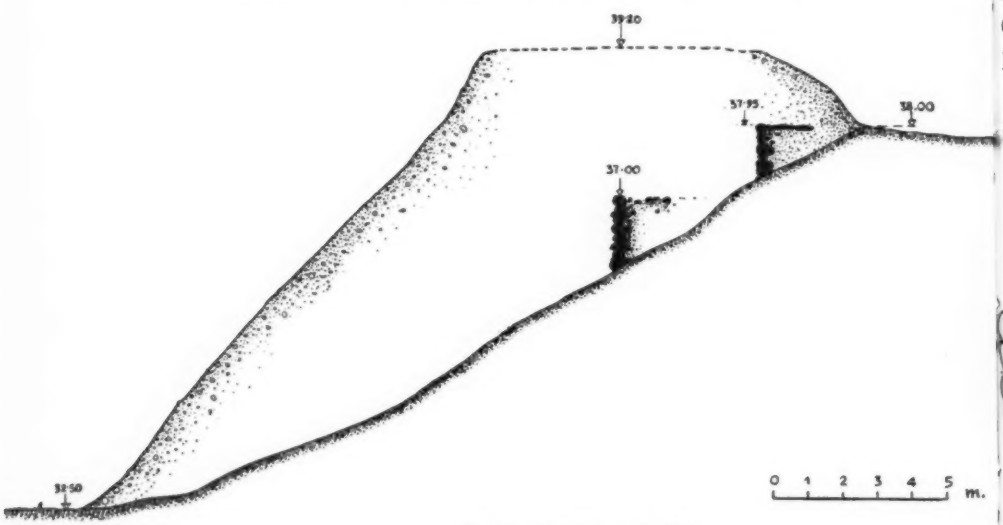

Fig. 11. Tumulus 6: Section.

tumulus 5, we dug a section 3.5 m. wide, starting again from the very edge of the tumulus. Within 4.5 m. from the edge, the ring-wall was struck upon. It is of the same character and make as that of No. 5. One projecting angle came to light in the small section of the ring-wall which we uncovered. This tumulus, however, seems to contain a much greater quantity of potsherds. The pottery will be described together with that from tumuli 5 and 6.

THE POTTERY

All the three tumuli excavated and sounded so far produced potsherds (and some vessels which could be reconstructed) of the same period. It should, however, be clearly borne in mind that pottery or other finds uncovered here have a different dating value from those found on floor levels of a settlement. Whereas in the latter all the finds belong to the end of the period in question, in our case they reflect the actual period when this installation was in use. Thus the small but homogeneous collection of sherds from the tumuli may prove of considerable dating significance. The analysis will deal with the pottery of all three tumuli together, although in the drawings it has been arranged in three separate groups.

The preponderant type, or rather family of types, is without doubt the 'folded rim' bowl and krater which is invariably ring-burnished on the inside (Pl. 40 D, G). It comprises here all the handled deep bowls (Fig. 13:5-10; Fig. 14:13; Fig. 15:7-9, 11, 21), and some of the bowls without handles (Fig. 15:4, 6).

This family, both because of its common occurrence here and because of the important place it occupies in archaeological research, invites special comment.

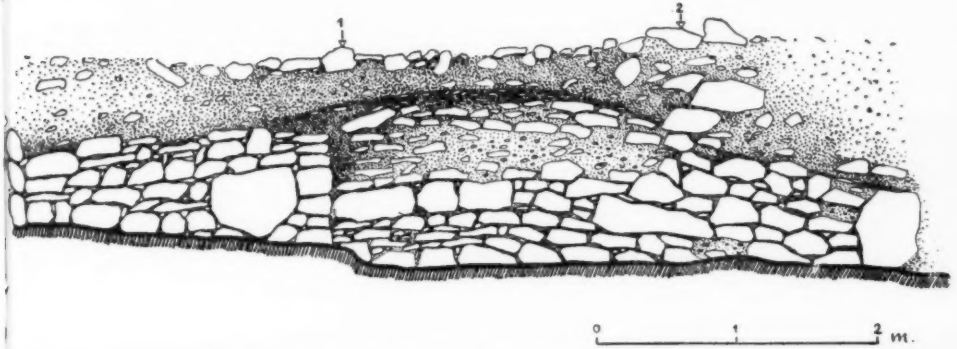

Fig. 12. Tumulus 6: Elevation of the upper wall.

It has been amply discussed recently by Miss Tufnell in *Lachish III*,[8] where it is classified as B 13, being a most characteristic feature of both Levels III and II there (Miss Tufnell's dates are: Level III ending in c. 700 B. C.; Level II dating from c. 700 to 586 B. C.).[9] Much comparative material from previous publications of Tell Beit Mirsim, Tell en-Naṣbeh, Beth Shemesh, and other places, and also from the material from Samaria,[10] has been connected up by her. The author accepts Miss Tufnell's date for Lachish Level III for various reasons irrelevant to our present study. The objection raised by Buchanan in his review[11] against this date, namely that this type, the folded rim bowl, had to 'move south' from Samaria to Lachish (p. 336) is not decisive. In our opinion, this type, which embraces a whole family of related variations, is of Judean origin and not North-Israelite; its occurrence on Israelite sites testifies to a borrowing from Judah, and not vice versa.[12]

This prevailing feature in the pottery of the tumuli provides a fairly narrow date for them: the second half of the eighth and the seventh century B.C.

The rest of the pottery reproduced here is in full accord with this dating: the high cooking pot (Fig. 14:3, 5; Fig. 15:14, 15, 19); the rounded bowl (Fig. 13:2) the flat dish (Fig. 15:2); the wide-mouthed jug (Fig. 14:1, 2, 4, 11); the various jars (Fig. 14:6-10, 12; Fig. 15:16-18); the degenerated bar-handle on bowls (Fig. 15:20, 22); the high-based lamp (Fig. 14:15); the ring-stand (Pl. 40E). Potter's marks on the handles of cooking pots—such as in Pl. 40F; Fig. 15:19—have been described by Albright as characteristic of level A2 at Tell Beit Mirsim.[13] The reconstructed rounded bowl of fine ware (Pl. 40B-C; Fig. 13:1) is worth noting: it is not as common as the types just mentioned, but has parallels in late contexts, such as cistern 370 from Tell en-Naṣbeh.[14] Red slip, in most cases burnished, is common, both on various types of bowls (Fig. 14:14, 16; Fig. 15:1, 3, 6, 11, 22), as well as on jugs (Fig. 15:12).

[8] Olga Tufnell: *Lachish III: The Iron Age*. Oxford, 1953, pp. 277-279. [9] *Ibid.*, pp. 55-58.

[10] J. W. Crowfoot, Grace M. Crowfoot, Kathleen M. Kenyon: *The Objects from Samaria* (Samaria-Sebaste III). London, 1957.

[11] B. W. Buchanan: *AJA*, 58, 1954, pp. 335-339. W. F. Albright (*BASOR*, 132, 1953, p. 46), and G. E. Wright (*JNES*, 14, 1955, pp. 188-189) also maintain Starkey's date for the destruction of Level III as 597 B.C.

[12] On wheel-burnished folded rim bowls in North Israel and Assyria, cf. Y. Yadin, Y. Aharoni, Ruth Amiran, Trude Dothan, I. Dunayevsky, J. Perrot: *Hazor*, I. Jerusalem, 1958, p. 37 and my forthcoming article in *'Atiqot*, 2.

[13] W. F. Albright: The Excavations of Tell Beit Mirsim I, *AASOR*, 12, 1932, pp. 81-88.

[14] J. C. Wampler: *Tell en-Naṣbeh*, II. Berkeley & New Haven, 1947, Pl. 54:1214.

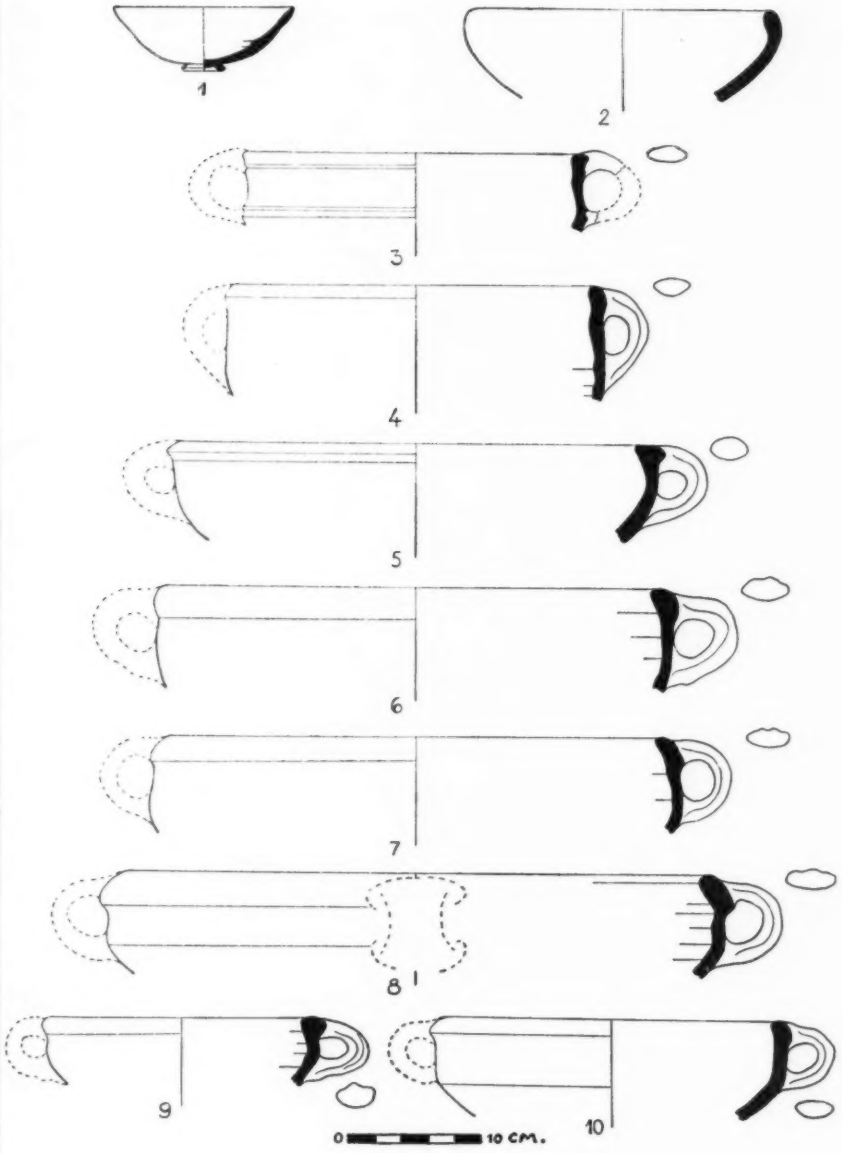

Fig. 13. Pottery from tumulus 5.

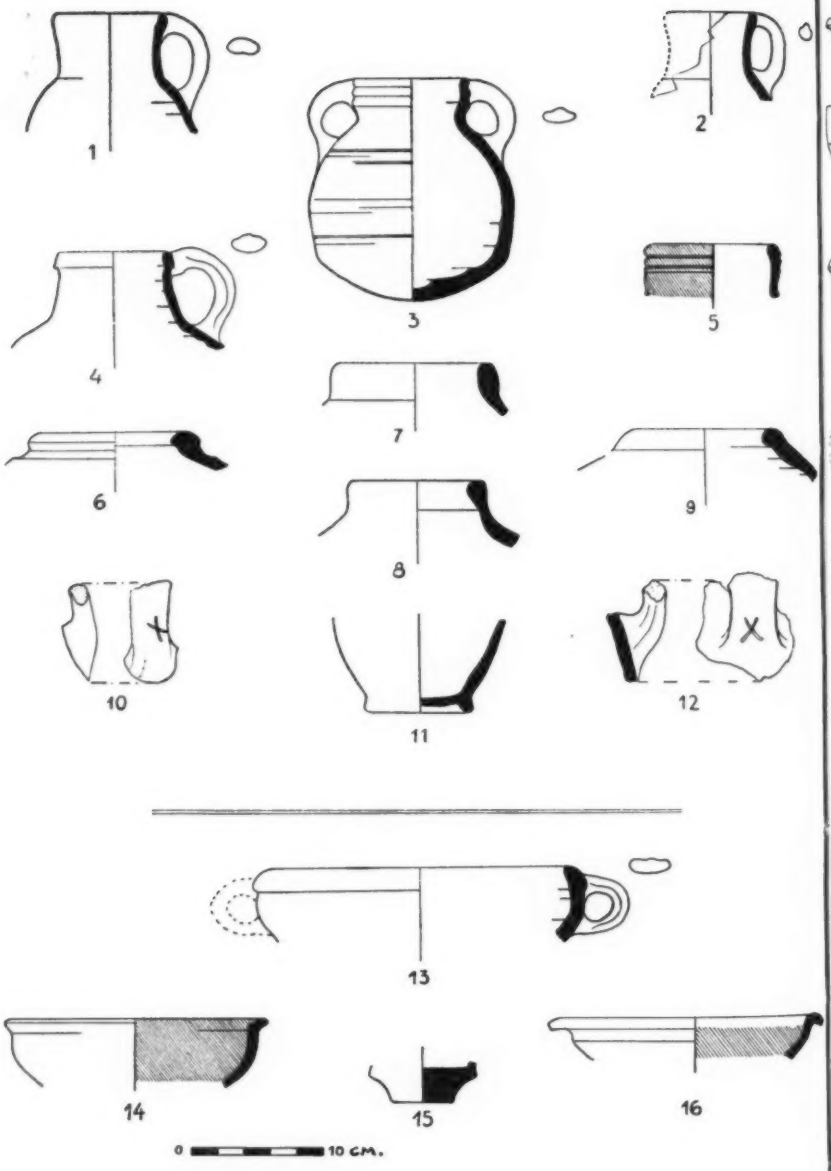

Fig. 14. Pottery from tumuli 5 (top) and 4 (bottom).

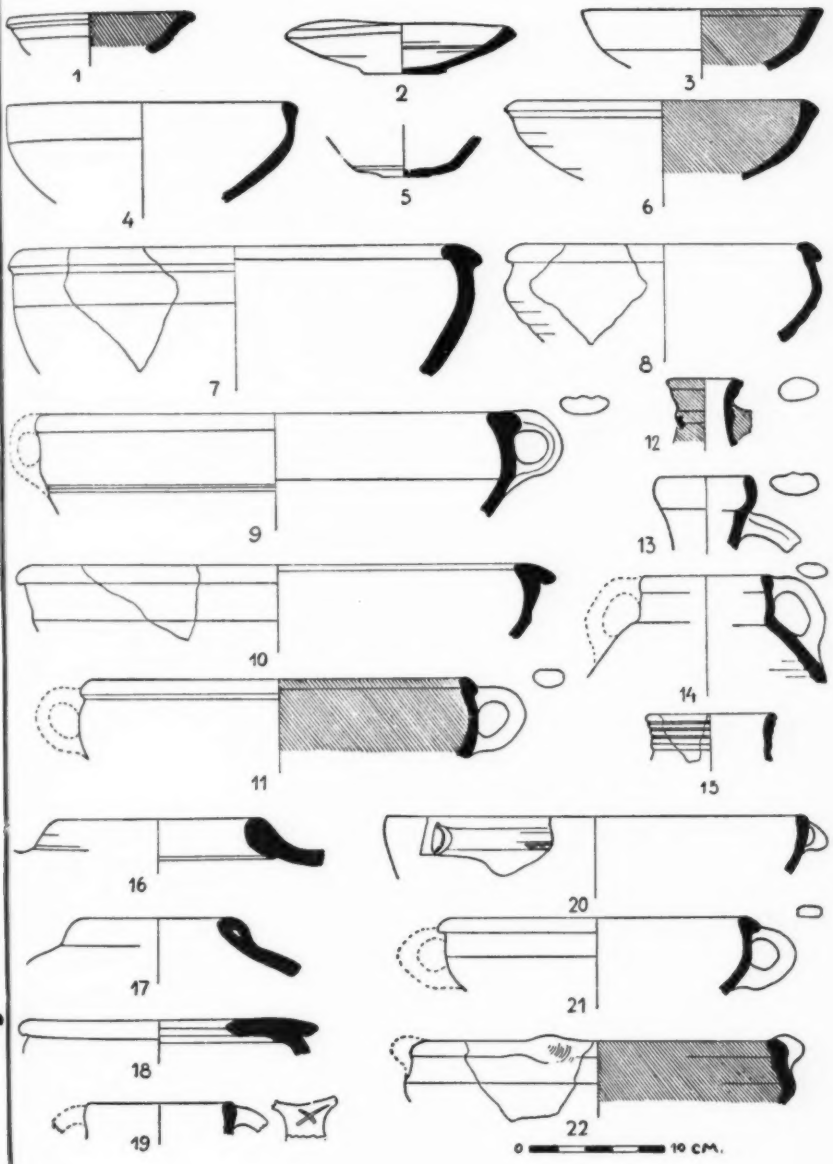

Fig. 15. Pottery from tumulus 6.

Two other groups of pottery have to be mentioned as parallel to ours: (a) tombs 2-8 of Beth Shemesh, which were dated by Wright to the seventh century B.C.[15] They contain the folded rim bowls,[16] the flat dish,[17] the high cooking pot,[18] and also the rounded bowl with ring-base;[19] (b) the group of tombs from Tell el-Ful published by Macalister many years ago,[20] which falls within the seventh century B.C.

CONCLUSION

Although many aspects of the problem have been clarified by the 1953 excavations, certain others still await further work, notably the cardinal question of the meaning and purpose of the tumuli.

The points which have been clarified are the date and the construction of the tumuli.

The evidence of the pottery shows clearly that the builders and users of these tumuli used the commonest Judean pottery. And the fact that this pottery is exclusively of local ware and style makes most probable the identification of the builders and users of the tumuli as natives of Judah. This conclusion does not, however, exclude the possibility that the idea as such grew under some foreign influence. The date as established from the evidence of the pottery is the seventh century B. C.

Several phases in the construction of the tumuli have been established, with the various constructional details specific for each of them. We have as yet no real way of estimating the time which elapsed between the first and last phases, i. e. the length of time in which the ritual acts took place. However, this intermediate period could not have been of great length, because of the resemblance between the stone filling under the steps and the stone heap of the tumulus itself, and also because of the uniformity of the potsherds found on the place of burning and those found among the stones of the tumulus proper.

The fact that no interment or any traces of human bones were found in the pit or beside it, and the ceremonial character of the flight of steps leading to

[15] D. Mackenzie: Excavations at Ain Shems, *PEFA*, 2, 1912-13, Pls. XXXIII-LXI; E. Grant & G. E. Wright: *Ain Shems Excavations (Palestine)*, Part V. Haverford, 1939, p. 136.

[16] Mackenzie, *op. cit.* (above, n. 15), Pls. XXXVII:18, XLI:7, XLVI:2, LIV:18, and others.

[17] *Ibid.*, Pl. XXXIII:13, and others.

[18] *Ibid.*, e. g. Pl. XLIV:3-6.

[19] The photographs do not show all the details needed, but Pls. XXXIX:1, 3, LVI:7, and LVII:14 are apparently of this type.

[20] R. A. S. Macalister: Some Interesting Pottery Remains, *PEFQSt*, 1915, pp. 35-37, Pls. I-IV.

the platform—these and other arguments led us at the conclusion of the 1953 excavation to interpret the whole site as a high place (*bamah*). This hypothesis was proposed in the preliminary Hebrew report and in the paper read at Cambridge,[21] as well as by S. Yeivin.[22] It should, however, be stated frankly that this suggestion was based on the absence of a burial in the excavated tumulus, i.e. it was based on a conception different from Albright's new theory as developed in his recent study,[23] viz. that the *bamah* served two purposes at one and the same time: that of a burial[24] and that of a cult place.

Reconsidering all the evidence of the work in 1953, it seems to me now that it does corroborate the interpretation of the tumulus as a tomb. It outweighs the absence of the interment itself, even more so if we remember that, both according to the new *bamah* theory of Albright and the tumulus culture of Anatolia, the burial itself may sometimes be located outside the tumulus.

However, as surmised above, the full significance of both the tumuli and the *bamah* theory should be elucidated by the continuation of the excavations of the tumuli, which is being planned for the near future.

[21] See above, p. 205, n*.
[22] *Archaeological Activities in Israel (1948-1955)*. Jerusalem, 1955, p. 15.
[23] W. F. Albright: The High Place in Ancient Palestine, *Supplement to VT*, 4, 1957, pp. 242-258.
[24] Cf. also H. Torczyner's (Tur-Sinai) paper on סבור and במה, *BJPES*, 1, 3, 1933, pp. 9-18, in which he suggests that *bamah* means body—corpse—tomb.

An Early Aramaic Seal

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THE seal under discussion (see Pl. 40 H-J) is the property of Dr. R. Hecht of Haifa, to whom the author is indebted for his kind permission to study and publish it. It was purchased in Jerusalem in 1952 and is of unknown provenance. The scaraboid seal, which is of a deep bluish-black lapis lazuli[1] with blue spots, is relatively large (26 mm. long, 18 mm. wide, and 9 mm. thick) and is unperforated; it was therefore probably set in the frame of a ring.

The oval base of the seal is divided horizontally by double lines into three registers. On the upper register is engraved a winged solar disk, the wings sloping downwards to fit their rounded setting. The disk is peculiar in having two sets of 'feelers' emerging from its top and bottom respectively.

The two lower registers are occupied by a carefully engraved inscription in Phoenician characters. The upper line reads לאחת·בר, with a dividing point after the *taw*; the lower line reads תנצרי, thus forming the legend:

l'ḥt brt nṣry לאחת ברת נצרי

(Belonging) to Aḥat the daughter of Naṣri.

The main interest of this inscription lies in the word ברת (daughter) which establishes the Aramaic character of the seal. To the best of my knowledge this is the first time an Aramaic seal has been found bearing the designation ברת, or any other female designation. In Hebrew, however, the denominations בת (daughter), אשת (wife of), and אמת (maid-servant of) occur on a number of seals.[2] Our seal thus sheds important light on the legal right of the Aramean woman to use her own seal and to sign documents in her own name. She must have been a noble lady who owned such a seal.

From the onomastic point of view the seal is equally interesting. The personal name אחת, to be pronounced *Aḥat* in Aramaic, meaning 'sister', is

[1] My thanks are due to Prof. Y. Bentor of the Hebrew University for identifying the stone.

[2] For a short discussion of seals owned by women, see N. Avigad: A Seal of a Slave-wife (Amah), *PEQ*, 78, 1946, pp. 125-132.

most probably a hypocoristicon of a theophoric composite name such as the Phoenician (Hebrew?) אחתמלך,[3] the Neo-Punic אחתמלקרת,[4] and אחתמילכת,[5] the Aramaic אחתבו,[6] אחתבסתי,[7] or the like. The use of אחת as a proper name by itself is later attested in Palmyrene, where the personal names אחתא[8] (sister) as well as אחא[9] (brother) occur. The latter is paralleled by biblical אחי (1 Chron. v, 15; vii, 34), a hypocoristicon of the theophoric אחיה.

נצרי, an unknown name, is apparently a derivation of נצר 'to protect', 'to guard', frequently used in the Bible and elsewhere as a synonym for שמר. In early Aramaic the *ṣade* of נצר had not yet given way to *ṭet* (נטר).[10] In Job vii, 20, God is called נֹצֵר הָאָדָם 'preserver of men'. In this sense the verb נצר appears in a theophoric composite name נצראל found on a Moabite seal,[11] which is to be interpreted 'God has guarded, protected'. This name may be compared with Palmyrene נצרלת (= נצראלת),[12] Nabatean נצראלהי,[13] and their hypocoristicon נצרא.[14]

The נצרי of our seal may thus represent a hypocoristicon of a yet unknown נצריאל 'God is my protector', paralleled in form by names like זבדי—זבדיאל, פלטי—פלטיאל, עבדי—עבדיאל, etc., or else it is a diminutive of נצר, corresponding both in structure and meaning to biblical שָׁמְרִי—שָׁמֶר. Similar structures abound. In the first case נצרי should be pronounced *Naṣri,* in the second the Aramaic form *Naṣrai*[15] is to be preferred.

Any attempt to establish the date of our seal must rely on palaeography as the main criterion. The script is strikingly Phoenician in style and lacks

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[3] The seal of אחתמלך אשת יפע (D. Diringer: *Le iscrizioni antico-ebraiche palestinesi.* Firenze, 1934, p. 219) could be Hebrew, but אחתמלך is more likely to be a Phoenician name.

[4] M. Lidzbarski: *Handbuch der nordsemitischen Epigraphik,* I. Weimar, 1898, p. 213.

[5] *Ibid.*

[6] אחתבו ברת עזיה is mentioned in an Aramaic inscription from Egypt, cf. G.A. Cooke: *A Text-Book of North-Semitic Inscriptions.* Oxford, 1903, p. 200, No. 71, l. 1.

[7] Representing Assyrian *Aḫatu-bâlti* 'the (divine) sister is my guardian angel'; cf. G. R. Driver: *Aramaic Documents of the Fifth Century B. C.* Oxford, 1954, p. 32.

[8] M. Lidzbarski: *Ephemeris für semitische Epigraphik,* I. Giessen, 1902, p. 342 k.

[9] Idem, *op. cit.* (above, n. 4), p. 500; *op. cit.* (above, n. 8), p. 76, No. 6a, l. 4 has אחא as a female name.

[10] Cf. תנצר צלמא 'thou shalt protect this image' in a seventh century B.C. Aramaic inscription from Nerab: Cooke, *op. cit.* (above, n. 6), p. 186, No. 64, l. 12; see also: וטבוה עבדך נצר 'thy servant remembers his kindness', in H. L. Ginsberg: An Aramaic Contemporary of the Lachish Letters, *BASOR,* 111, 1948, pp. 25-26.

[11] נצראל הנצר; Diringer, *op. cit.* (above, n. 3), p. 259.

[12] Lidzbarski, *op. cit.* (above, n. 4), p. 325. [13] *Ibid.*, p. 502. [14] *Ibid.*, p. 480.

[15] For the suffix *ai* in Aramaic proper names, cf. M. Lidzbarski: *op. cit.* (above, n. 8), II. Giessen, 1908, pp. 14-17.

any of the particular features which developed in the Aramaic branch of this alphabet. The same characteristics are common to the earliest Aramaic inscriptions found in Syria dating to the ninth and eighth centuries B. C. Especially noteworthy letters of the seal are: the *aleph* with two horizontal strokes (the third upper one is the result of a casual scratch) resembling the Siloam type of *aleph*; the double-barred *ḥet*, and in particular the crossed equilateral *taw*. The only letter with an Aramaic touch is the *ṣade* with its single-bent right arm, but this has a close parallel in the eighth century B. C. Ba'al-Lebanon inscription found in Cyprus. We can therefore safely assign our seal, which is most probably of Syrian origin, to the eighth century B. C.

The Ancient Desert Agriculture of the Negev

III. Early Beginnings*

M. EVENARI, Y. AHARONI, L. SHANAN and N. H. TADMOR

INTRODUCTION

In desert areas which have an annual rainfall of 150 mm. or less, agriculture is possible only in the depressions where runoff water collects. However, cultivation of these depressions together with the concentration of the runoff in them leads to gulley erosion, and eventually the depressions become wadis. Since ancient times the inhabitants of the desert have tried to solve the problem of stabilizing the depressions by constructing walled terraces. At the same time they developed various methods for the control and distribution of the runoff. These technical developments are referred to in this paper as 'desert agriculture', or 'flood-water irrigation'.

During the last few years, particular attention has been focused on the agricultural achievements of the ancient civilizations in the Negev, the southern desert of Israel.[1] Nabatean, Roman, and Byzantine agricultural remains in this

* Nos. I and II of this series were published in *Ktavim*, 8 and 9 respectively, see bibliography at the end of this paper: Tadmor a.o. and Shanan a.o.—The present study was made possible by a grant from the Ford Foundation (sub-project 2), to which the authors express their sincere appreciation. Thanks are also due to Mr. Y. Kolodni, who measured and made the architectural drawings; to the brothers N. and Y. Minsker, who surveyed some of the cisterns; to Messrs. B. Bamberger, Y. Ben-Shaul, M. Sacks, and A. Arieli, all of the Hebrew University, who accompanied the authors on several of the trips. Mr. M. Kochavi, also of the Hebrew University, took part in the archaeological survey. The pottery was photographed by Mrs. H. Bieberkraut. Mr. E. Alumi of Tel Aviv joined part of the survey and conducted the authors to the K-line. The Israel Air Force is especially to be thanked for its continued help and effort at all levels of command. All air photographs are published by the kind permission of the Ministry of Defence.—Last but not least we should thank Mrs. Liesel Evenari, who was responsible for organizing the field trips and also took ground photographs.

[1] Boyko (1949, 1949-51), Evenari & Koller, Glueck (1958), Kedar (1956, 1957), Kraemer Lowdermilk (1953, 1954), Palmer, Reifenberg, Shanan a.o., Tadmor a.o., Wahrmann & Zohary (1954, 1957), Woolley & Lawrence, Zohary.— For full titles etc., see bibliography at the end of this paper, below, pp. 251-252. For Figs. 1-25, see pp. 253-268.

region, although they have not so far been studied specifically, are usually regarded as the chief, if not the only, agricultural development of any importance in the area. But during the present investigation, which deals with the technical aspects of ancient desert agriculture,[2] we found that this assumption is by no means always true. In fact, it became more and more apparent that important agricultural ventures preceded the Nabatean, Roman, and Byzantine civilizations, and that some of the principles of flood-water irrigation usually credited to the ingenuity of the Romans[3] were probably practised long before them.

In some places the later civilizations are superimposed on the earlier ones in a very complicated manner, and it is difficult to differentiate the limits, forms, and contents of the systems belonging to the various periods. In order to study these agricultural systems it therefore became necessary to date them. Most of the archaeological work done previously was of little help in this study, since it dealt with the individual forts, guard-posts, habitations, towns, etc. without any particular reference to the agricultural systems that may have been related to them. In very densely settled areas, such as the Shivṭah, 'Avdat, and Niṣṣanah regions, intensive developments by later settlers obliterated the remains of earlier civilizations, and only extensive excavation will enable us to study the earlier periods in detail. In such places as the plateau of Mishor ha-Ruaḥ (Figs. 1-3), the later settlement was less dense, and the remnants of earlier civilizations are consequently easier to distinguish. This area was therefore chosen with the specific purpose of studying these earlier civilizations. Our aim was to develop architectural, engineering, and archaeological criteria, which in turn would assist in the subsequent classification and dating of agricultural systems in more densely settled areas.

THE PLATEAUX OF MISHOR HA-RUAḤ *(SAHIL AL-HAWA)* AND THE UPPER NIṢṢANAH VALLEY *(WADI 'AJRAM)*

The Mishor ha-Ruaḥ and the Upper Niṣṣanah Valley are situated at the edge of the Makhtesh Ramon (Fig. 2) and together cover about 3000 hectares (c. 7500 acres). They consist of a series of long valleys lying parallel to the main axis of the Central Negev Upwarp. These valleys are between 700-950 m. above sea-level, while the adjacent mountain peaks reach 800-1035 m. The

[2] Shanan a.o., Tadmor a.o., Tadmor & Hillel.

[3] Colt, Glueck (1958), Kedar (1956, *IEJ* 1957), Kraemer, Lowdermilk (1954), Palmer, Reifenberg, Woolley & Lawrence.

valley bottoms, which are composed of relatively deep loess soils, lie in the Upper Cenomanian-Turonian limestone formations. The rugged, barren, and rocky hillsides are stratified with limestone outcrops, which naturally weather into rectangular oblong boulders. All along the western foothills lies a completely impermeable marly formation several metres deep.[4] The plateau of the Mishor ha-Ruaḥ varies in width from 2 to 5 km., whereas the Upper Niṣṣanah Valley is generally between 200-500 m. in width, except for the narrow vale which reaches the watershed between these two main valleys. The climate of the area is arid, with hot dry summers and relatively cool winters. Rain falls in winter only in the form of scattered storms occurring at any time between October and May, and fluctuates widely around a mean of 75-100 mm.[5] Mishor ha-Ruaḥ is at the south-eastern climatic limit of the area where desert agriculture based on flood-water utilization is possible. On the leeward side of the Central Negev Highland Range, the mean annual rainfall drops sharply to below 50 mm. and is completely inadequate for any form of sedentary habitation.

ANCIENT AGRICULTURE IN MISHOR HA-RUAḤ AND THE UPPER NIṢṢANAH VALLEY

In the wide valley bottoms, which are very suitable for cultivation, are the remains of long stone walls (Pl. 42; Fig. 3) which stabilized the flood plain and prevented the development of gullies and wadis. This area has been cultivated from ancient times up to the present shifting Beduin cultivation.

Our attention was first drawn to the northern end of Mishor ha-Ruaḥ, where the foothills include a soft marly stratum. All along this formation large open water cisterns were found, of a type not common in other areas. Further investigation disclosed the remains of civilizations that preceded the Nabatean-Byzantine periods (c. 200 B.C.-A.D. 600). As in other parts of the Negev, these earlier remains fall mainly into two periods: (a) Middle Bronze Age I (about 2000 B. C.), (b) Israelite period III—the period of the Judean kings (about 850-600 B. C.).[6] The occurrence of these earlier civilizations is well known.[7]

[4] Bentor & Vroman.

[5] Ashbel, Boyko (1949, 1949-51), Tadmor & Hillel, Wahrmann & Zohary (1954, 1957).

[6] The authors use here the new scheme of subdividing the Iron Age into Israelite periods I-III; cf. Y. Aharoni & Ruth Amiran: A New Scheme for the Sub-Division of the Iron Age in Palestine, *IEJ*, 8, 1958, pp. 171-184.

[7] Aharoni (*IEJ* 1958), Frank, Glueck (1953-1958), Kraemer, Musil, Palmer, Rothenberg & Aharoni, Wiegand, Woolley & Lawrence.

The contribution of the present study lies in the discovery of specific agricultural features directly related to the period from the Middle Bronze Age I to the Israelite period III.

These agricultural features were dated according to the following criteria:

(1) buildings associated with the agricultural areas;

(2) forts and guard-posts which protected them;

(3) routes along which the 'farm units'[8] were built.

This part of our article summarizes briefly those finds which serve to date the agricultural systems of the two earliest periods. Additional pertinent details of individual houses, farms, forts, cisterns, etc. are fully described in two appendices. A subsequent paper will present a more detailed survey of the whole area.

DISCOVERIES DATING FROM THE PERIOD OF THE JUDEAN KINGDOM

Five separate study areas (see Fig. 2) were selected, all containing remains of the period of the Judean kingdom. In this section the principal facts relating to ancient desert agriculture will be described. The reader is referred to appendix I: areas A, B, C, D, E (below, pp. 239-247), for further details of structures, buildings, forts, flood irrigation devices, etc.

Area A (Pl. 43, Fig. 4): This is one of the largest known settlements of this period in the southern Negev. It consists mainly of a large fort (fort A, Pl. 41 A; Figs. 5, 6), with at least twenty houses in its immediate vicinity, a smaller fort (fort B, Fig. 10) two kilometres away, and finally a number of water cisterns (Pls. 44 A, B, 47 C; Fig. 11) dug in the marly formation. The position of the cisterns and of their collection channels in relation to the buildings leaves no doubt that they were used in the period of the Judean kingdom. Since many if not all of them have been re-used and repaired since then, it is difficult to determine their original form. All the cisterns are filled by winter runoff from the hills with the aid of channels up to one kilometre in length. It is therefore certain that the principles of exploiting surface runoff from small watersheds for water storage were fully understood and practised as far back as 850-600 B.C.

[8] 'Farm units are cultivated areas, surrounded by a stone wall fence, usually with a house (farmstead) within the boundaries of the fence; they will be dealt with in a subsequent paper.

Area B: This area is composed principally of a small farm unit, farm F (Pl. 45A; Fig. 13), which includes terraced fields, a large farmhouse (Pl. 45B; Fig. 14), and two water cisterns. The terraced fields and houses are surrounded by a stone fence and the whole area was once a single integrated unit. The terraced fields and the cisterns received their winter runoff water from the adjacent watersheds in an ingeniously planned system (Fig. 13). Water from the two small wadis was diverted to fill the cisterns, and the excess waters were then led to the fields. Additional surface waters were collected in channels of small gradients running around the hillside to the fields. This is the first discovery of a farm unit of the Judean period, and indicates the existence of a sedentary (in contrast to nomadic) type of agriculture in the Negev during this period. Furthermore it shows that the principles of utilizing runoff from small watersheds, not only for water storage but also for flood irrigation, were known and practised as early as that.

Areas C, D, and E (Pl. 46A,B; Figs. 12, 15-21, 25): In these areas additional forts, farm units, dwellings, and water cisterns of the Judean period were found. All the forts, dwellings, and farm units conformed to the descriptions given above of areas A and B. It now became clear that utilization of runoff water for storage and flood irrigation was not just an isolated occurrence, but a widely practised method of exploiting the natural resources of the desert in the period of the Judean kingdom. The variations in farm and cistern structure found here (see appendix I, below, pp. 241-247) show that in the Judean period the engineering techniques of rock excavation, terracing, and stone wall construction were already well understood and were adapted to the local topographic and petrographic conditions.

Further examination disclosed possible differences in the styles of Judean as against Roman stone walls and terraces. In the fenced walls of the Judean period the longest side of the oblong boulders stood upright, whereas in the terraces they were usually placed horizontally. The walls, which are generally made of a single line of boulders, give an external appearance of a conglomerate facing. The Roman walls and terraces, on the other hand, are usually built of smaller stones, carefully selected and placed in courses with their long sides lying horizontally. The walls often have two stone faces with a rubble fill between. The upper courses may be set back to form a step-like structure.

The weaker primitive 'Judean' type of wall is similar to the simple style of the

Beduin builder, whereas the much stronger Roman method is common in modern building practice.

The differences have yet to be checked in other areas where Judean and Roman agricultural remains can be found side by side.

DISCOVERIES FROM THE MIDDLE BRONZE AGE I

Many habitations of the Middle Bronze Age I in the Negev have been described by Glueck;[9] numerous new sites were found in the area of the present survey. The time spent in investigating this phase of the problem was, however, insufficient to enable us to draw a complete picture of the agricultural system of the period. Details of some of the many structures found are described in appendix II (below, pp. 247-250). Parts of a hand grindstone and of a sickle (Pl. 52 D, F), found in the debris of a circular Middle Bronze Age I building excavated by Beduin, show that some form of agricultural settlement existed even as early as c. 2000 B.C. However, further investigations and excavation will be necessary before it can be determined whether the population of the period was sedentary or nomadic, and to what extent flood-water irrigation was practised.

DISCUSSION

General

Several facts may explain the relatively dense settlement of the Mishor ha-Ruaḥ—Rosh Ramon area during the Middle Bronze Age I and Israelite period III.

Firstly, the wide valley bottoms which are composed of fairly deep loess soils could be cropped with the aid of simple methods of spreading water.

Secondly, the high elevation of the western side of the Central Negev Highland Range ensures a rainfall of 75-100 mm., a quantity considered a minimum for successful flood irrigation cropping in the desert.

Thirdly, the valleys of the Mishor ha-Ruaḥ—Rosh Ramon area are the best route from SW to NE for travel in both ancient and modern times. Several important roads have followed this line.[10] The main road from Egypt to Syria, which branched off at Kadesh Barnea ('Ein Qudeirat), led through Beer Ḥafir (Bir al-Hafir) and the Niṣṣanah Valley (Wadi 'Ajram) to Mishor ha-Ruaḥ. Following this plateau in a NE direction, it then descended into the Zin Valley (Wadi Fiqra) and continued towards the northern 'Aravah. This route is al-

[9] Glueck (1953-1958).

[10] Aharoni (1954, *EI* 1958), Frank, Musil.

ready described in the campaign of the four 'northern kings' against the cities of the Dead Sea region '... And they returned, and came to En-Mishpat, which is Kadesh, and smote all the country of the Amalekites, and also the Amorites, that dwelt in Hazezon-Tamar' (Gen. xiv, 7). The march of the Israelites from Kadesh Barnea by Mount Hor to Zalmonah and Punon in the northern 'Aravah may also have followed the same route (cf. Num. xxxiii, 37-43).

The Middle Bronze Age

(See appendix II, pp. 247-250)

Very little is known so far about how the Middle Bronze Age I inhabitants made a living in this region, and to what extent they engaged in agriculture. They may have depended largely on the grazing of sheep and goats. The Middle Bronze Age I wall (K-line—see appendix II, below, pp. 249-250 and Pl. 48 A; Figs. 21, 23), found near Rosh Ramon, indicates that the Middle Bronze Age I settlement in this area was organized and planned: such a large structure could never have been built by an individual settlement, only by a central organization. This type of an ancient stone wall is not an isolated instance. Parts of a similar wall have since been found by the authors near Beerot Aroer (Biyar 'Ar'ara) (co-ordinates 152057). Careful tracing on air photographs and additional field surveys should in future reveal the limits and purpose of this ancient stone wall. Extensive border protection may help to explain the absence of any fortification in the Middle Bronze Age I habitations themselves.[11]

The Israelite Period III

(See appendix I, pp. 239-247)

During the Israelite period III this area witnessed a second period of prosperity. The dense network of forts shows that an important road passed through the area, reaching Elath on the one hand and Kadesh Barnea on the other. This connection is proven by the identical plans of fort A and the fort above Kadesh Barnea.[12] The settlements generally clustered around these forts. The settlement around fort A is comparatively large. The forts and the settlements in their vicinity were undoubtedly dependent on a widespread and well-planned network of water-storing cisterns, which were dug at regular intervals throughout the

[11] No historical identification of the Middle Bronze Age I civilization will be attempted here. It is interesting to note that the ancient border of the land of Canaan passed by here, running from the northern 'Aravah to Kadesh Barnea.

[12] Rothenberg & Aharoni, p. 140, Fig. 9.

area. The cisterns were repaired periodically and have provided the nomad population with drinking water throughout the ages; they still do so now.

The settlements depended for their existence first of all on the road (as may be seen from the forts and the 'inn' at site No. 10; cf. p. 240). Sheep and goats provided a secondary source of living, for corrals and pens are attached to most of the houses of this period. But a substantial amount of the necessary food was most certainly grown locally in the arable lands of the wadi bottoms. Even the nomadic Beduin today attempt to grow as much food as possible in these areas.

It seems that the Israelite period III settlers were the first settlers known to develop the cropping system based on flood-water irrigation, as evidenced in farms F, H, I, and J.

This agricultural achievement was later elaborated upon; it reached its peak in the period from the Nabateans to the Byzantines, when the desert again flourished. It may be reasonably assumed that the Iron Age culture by means of flood-water irrigation extended widely throughout the Negev as far south as the Ramon depression, and that its remnants have been largely obliterated by the dense Nabatean and Roman-Byzantine settlement around the six desert towns further north. The discovery of many more Iron Age agricultural remains throughout the whole of the southern Negev is now to be expected.

This type of sedentary agriculture, using the runoff water in the desert, may have been the result of a concentrated state-wide effort by the Judean kings to dominate the area. Uzziah is one of the kings to whom this enterprise could be attributed; he was one of the most powerful Judean kings who ruled the Negev down to Elath. The records of his operations boast that 'also he built towers in the desert, and digged many wells: for he had much cattle . . . for he loved husbandry' (2 Chron. xxvi, 10). The Hebrew text reads: ויחצב בורות ... רבים ... כי אהב אדמה היה, of which the verbal translation should be: '. . . and hewed out many cisterns . . . for he loved the land'. This would fit exactly the finds of this region. The forts, dams, and cisterns found at al-Buqei'a in the wilderness of Judah[13] apparently also belong to the reign of this king. It is thus possible that Judean settlement in this area reached its peak under him and penetrated to the southernmost limits of the region in which permanent settlement and agriculture were still possible.

[13] Cross & Milik.

In conclusion, a word of caution must be added. The data presented in this paper extend the history of runoff water utilization in the Negev back to approximately 800 B.C. Very little is as yet known, however, about the Middle Bronze Age I settlement of this area. If further evidence supports previous findings that the Middle Bronze Age I witnessed a relatively dense settled population, it would be but logical to assume that the Middle Bronze Age I settlers also needed drinking water and food supplies. Hence further investigations into the type of Middle Bronze Age I settlements may date the knowledge of how to utilize flood-water even further back, to about 2000 B.C.[14]

APPENDIX I:
FINDS OF THE ISRAELITE PERIOD III

AREA A: FORT A AND SURROUNDINGS (Fig. 6)

The largest Judean settlement (Israelite period III) was found just north of where the modern Beersheba-Elath road descends from the west into the Mishor ha-Ruaḥ plateau. It consists of two forts, a score or more houses, and eight cisterns.

Fort A (Fig. 5) measures 20 × 20 m. It is surrounded on three sides by a casemate wall 2.8 m. thick, the interior compartments of which most probably served as living quarters. The wall is built of large unhewn stones and is generally only one stone in thickness. The entrance to the southern room, with two doorposts and a threshold, is well preserved. At the gate, situated on the eastern side of the fort, is a very solid wall, 1.5 m. thick. The southern side of the gateway, which adjoins a guardroom, is protected by inner and outer abutments.

This fort is identical in plan with the fort on the ridge north of Kadesh Barnea,[15] and both were probably built at the same time.

Except for a few Byzantine sherds, only remains of the Israelite period III were found within the fort and its surroundings (Pl. 49A-E).

On the slope in front of the fort and in the valley below are at least twenty houses belonging to the same period. Although they are scattered, they might be

[14] We shall not go here into the general question of the origin of the systems of flood-water irrigation and their possible connections with the irrigation systems developed in South Arabia at the beginning of the first millennium B.C.; cf. Bowen & Albright, esp. pp. 43-131.

[15] Rothenberg & Aharoni, p. 140, Fig. 9.

regarded as one continuous cluster of habitations of the unfortified 'houses of the villages (חצרים) which have no wall round about them' (Lev. xxv, 31).

Some of the houses are built into the slope with their back walls quarried into the cliff. The houses in the valley below and in the small valley east of the fort are well preserved (see Pl. 41 A; Fig. 6).

House No. 9 (Pl. 41 B; Fig. 8) is a very interesting group of buildings near the main road. It consists of several irregularly shaped rooms of which the northern one may have been an open yard divided by a row of pillars. One pillar was found in place and a second one was lying beside it. The southern unit adjoining these rooms is built of smaller stones and consists apparently of four smaller rooms around a central yard. Since the existence of the southern wall of this yard is largely hypothetical, the yard may have reached the southern outer wall of the house. This plan resembles that of a typical Israelite four-room house. The nearby corral may have served both units.

House No. 10 (Fig. 9) consists of several rooms built into the slope. A large courtyard at a lower elevation is surrounded on either side by a row of rooms of which the eastern row is preserved best. The thick walls separating some of the rooms are indeed terraces, since the entire structure was adapted to the slope facing south. The western row of rooms is largely ruined, and its details cannot be measured with accuracy, but it seems clear that the row stretched for as much as 35 m. No southern wall now remains, but it is reasonable to assume that the two rows of rooms were once connected by a wall.

The size of this building and its unusual plan prove that it was not a private house. Its topographic position and the wall structure make it improbable that it was a fort. The house might therefore have served as a caravanserai for passing travellers.

House No. 14 (Fig. 7) contains three rooms built partly into the cliff face. In front is a double courtyard; the larger yard probably served as a corral for live-stock. The central room may also have been an open yard, and a large flat stone with a central cavity set in its eastern side may have served as work bench.

Fort B (Fig. 10) is a small fort about two kilometres north of fort A and commands a splendid view of the northernmost part of the plain. It probably pro-

tected the roadway and the areas from the northern side. It is strongly built; its plan is that of a four-roomed house, with a central yard and three adjoining rooms. East of the fort, and leading up to it, is a flight of stairs hewn in the rock.

The sherds found in all these structures (Pl. 49A-E) date mainly from the Israelite period III (850-600 B.C.). Here, as well as in the other structures, it is interesting to note that together with such sherds as are usually found in contemporary Judean structures in other parts of the country, many very coarse sherds were also found. These were handmade and poorly baked. The consistent occurrence of such pottery throughout the southern Negev suggests that it represents a primitive local ceramic industry which supplied the needs of the inhabitants, along with imported northern Judean pottery. This hypothesis was confirmed by the excavations at farm F (see below, p. 243), where a common primitive handmade pot with a rim and a flat base was found together with fragments of pottery typical of the Israelite period III.

The water cisterns. Eight cisterns were found at the foot of the slope between the two forts (Pl. 43, 44A, B, 47C; Fig. 4). They are unusual in that they are not hewn into the rock, but dug out of the soft Turonian marl.

Four cisterns were measured, but since they are all similar (varying only in size and minor details), only one (No. 1)—that situated between houses No. 9 and 10—will be described in detail (cf. Figs. 6, 11).

This cistern is an open pit, almost circular, dug out of the marl. It is lined with large unhewn stones to prevent the collapse of the soft marl. The stone walls were not plastered, as the wet marl itself is impervious to water. No stone-built floor was found, and it seems that this would have been unnecessary. The cistern is surrounded by a double row of large upright stones, which served as a fence. Two channels draining the slope above (near fort A) lead into the cistern; a small silting basin prevented eroded material from entering the cistern. No evidence of a roof was found. The cistern is about four metres deep, and as yearly evaporation is of the order of 1.5 m.[16] much water should have lasted throughout the year. Destroyed in this cistern, but existing in many others, is a series of large flat stones protruding from the wall and descending, like steps, into the cistern.

[16] Ashbel (Atlas), p. 60.

Many such cisterns are found in a line 35 km. long at the western edge of Mishor ha-Ruaḥ from its northern end near the Maḥmal pass to the Rosh Ramon area in the south. The cisterns vary in capacity from as little as ten cubic metres to as much as several hundred.

These open cisterns have all been dug in the outcrop of the marly and impervious stratum. The ease with which the cisterns can be dug in the soft marl accounts for their form and structure. It is not yet known whether marly deposits in other parts of the Negev were similarly used, but such open cisterns are far less common than the rock-cut cisterns existing throughout the Negev.

The position of the cistern (Pl. 41 A; Fig. 6) in relation to the houses leaves no doubt that it was originally installed during the Iron Age, since there is no other source of water for the inhabitants and no other dwellings were found near the cistern. This cistern, like many others in the area, has been repaired and partially rebuilt several times and is still in use today.

AREA B: FARM F (Pl. 45 A-C; Figs. 13, 14)

This small farm unit lies in a tributary wadi at the junction of the Upper Niṣṣanah Valley and Wadi Tubeik. Situated above the farm is a small guard-post (fort C), 4.5 × 8 m. (outside dimensions), dating from the Iron Age, as evidenced by the large unhewn stones in its corners and by the pottery finds. The structure is in a very ruined state, and its floor plan can only be determined with the aid of excavation.

Farm F is surrounded by a stone fence (Fig. 13), which encloses both the bottom lands and part of the slopes. Between this fence and the terraced bottom lands stands a farmhouse (No. 26) which forms an integral part of the unit. This house (Pl. 45 B; Fig. 14) served as the key to dating the farm; it consists principally of a courtyard flanked on two sides by rooms. The courtyard is divided by a row of three stone pillars, 1.5 m. high. Two of these were found standing *in situ* (Pl. 45 B, C), while the third was found lying nearby. A trial excavation in part of the courtyard showed that the western part of the yard had been roofed over with flat stone slabs, which had long since collapsed. A few of these slabs were found between the pillars and the western wall.

The house (Fig. 14) stands on sloping ground, and the eastern side of its courtyard is raised with a terrace. Three rooms are found below the terrace, and additional rooms were built on the south side of the courtyard. These are in too ruined a state for a drawing of a floor plan to be made without further exca-

vations. Much Iron Age pottery was collected in and just below the house, and the predominant finds were coarse vessels with hole-mouth rims and flat bases (Pl. 50C, D). In the small southern room was found the upper part of such a vessel with a spout (Pl. 50A, B). It is handmade of very coarse, pinkish clay, poorly baked and containing large grits. Some typical Judean pottery of the Israelite period III was also found: a thickened rim of a jug, that of a store jar (Pl. 50:13, 14), a carinated shoulder of another store jar (Pl. 50:15), and a ring-burnished sherd (Pl. 50:12). On the floor of the central western room a sea-shell was found (Pl. 49F), doubtless from the Red Sea shore. These finds leave no doubt that the house belongs to the Israelite period III.

This conclusion is further corroborated by the plan of the building, which is a simple variation of the Israelite pillared building encountered in many excavations in Israel and Judah and belonging to the ninth to seventh centuries B.C.[17] The inner court was typically divided into a covered and an open area by a row of columns; a row of rooms was built on two sides of this court.

The plan of the farm itself (Fig. 13) shows that its cultivable land, about one acre in area, was divided into 13 terraces. The winter runoff water for irrigation was received from two small wadis. Additional water was directed into the system by the overflow from the cisterns and also by channels bringing runoff water from the adjacent slopes. Just above the farm are two covered cisterns, hewn in the soft rock and different from the open pit type described above. They originally belonged to farm F, since the overflow from the lower cistern is clearly connected to the farm unit.

AREA C: FARM G (Fig. 12)

This group of farms in the Upper Niṣṣanah Valley has not yet been surveyed in detail, but one of its units investigated more in particular was found to contain two different types of stone walls. Some of the terraces and field-walls are built of smaller regular stones laid in clean well-defined courses, two stones thick. Other terraces and field-walls are coarsely built of stones of various sizes placed in single rows and sometimes including many boulders standing upright. This led to the assumption that this farm unit was operated in different periods,

[17] W. F. Albright: The Excavations of Tell Beit Mirsim, III: The Iron Age, *AASOR*, 21-22, 1943, paras. 33-35; C. C. McCown: *Tell en-Naṣbeh*, I. Berkeley & New Haven, 1947, pp. 212-215; Y. Yadin, Y. Aharoni, Ruth Amiran, Trude Dothan, I. Dunayevsky, J. Perrot: *Hazor*, I. Jerusalem, 1958, pp. 14-19.

an assumption borne out later by the remains of two separate houses found inside the farm unit. One house, which is well built and of the Roman period (Fig. 17), contains a central yard and two rooms each on its eastern and western sides. It adjoins the field-wall, and an opening in this wall clearly leads to it. Much Roman pottery was found in and near the house. About 100 m. to the east a second house, in a very ruined state and containing Iron Age sherds, was discovered within the confines of the farm wall. The crude types of terraces and field-walls can probably be attributed to the earlier age, while the better-built ones belong to the later period.

AREA D (Fig. 20): *FORT D AND SURROUNDINGS* (Figs. 15, 16)

On a small hill, wedged between the two fertile plains of the Upper Nissanah Valley, stands the square fort, 8 × 8 m. (Fig. 15). In its immediate vicinity are two rock-cut cisterns of the closed type, which served the fort and several houses adjoining it. The houses are all small and largely destroyed. Plans of two of them were sketched (Fig. 16). In the fort and houses much pottery of the Israelite period III was found. Two types of pottery can again be distinguished: the common Judean type, and the coarse local material (Pl. 51 B). The first type is represented in Pl. 51 A by rims of store jars (1-5), a ring base of a bowl (6), a groved rim of a cooking pot (7), and several rims of jugs (8-11).

All this clearly identifies the fort and the other buildings as belonging to the Israelite period III, but no clear connection could be found between these and the terraces in the small tributary valley. The crude construction of the terraces could indicate Iron Age origin, which would fit the dating of the nearby buildings, but as no fenced farm units could be found to connect definitely the terraces with a dated building, no final conclusions can as yet be drawn.

AREA E (Fig. 21): *FORT E AND BEEROT LOṢ*

Fort E protects a number of open and semi-roofed cisterns, which are associated with several nearby buildings and farm units. The fort, buildings, farms, and cisterns will be described separately.

Fort E (Pl. 46 A; Fig. 19) is a small fort of the Israelite period III, built on a low hill, between the head-gullies of the Ḥorshah Valley (Wadi Khureisha). Some distance to the south-west are a number of buildings, a few of which were investigated. One of these (No. 29; Fig. 18), to the south of the fort, is larger than

the rest and comprises two rooms: it may also have been a fort. In front of it remnants of another Israelite pillared-type house were found, but its ruined state does not enable a floor plan to be drawn without excavation. In all these buildings and around them, only Israelite period III sherds were found. Other buildings, not sketched in detail, include two large livestock corrals at the foot of fort E.

About 1 km. north of the fort, on a low saddle, stands a small one-room Roman house. The masonry consists of a double row of picked stone, placed in courses and filled in between with smaller stones. This construction, which seems typically Roman, is different from that found in the Iron Age buildings in the same area.

The farms. The small tributary wadis in the head-gullies of the Ḥorshah Valley near the above mentioned buildings are terraced. Many of the terraced fields are fenced into distinct farm units, which often include farmsteads. The other tributaries, which contain unfenced terraces, will be dealt with subsequently.

About 1500 m. north of fort E, another unit, farm H, was investigated (Fig. 25). It includes an almost completely ruined house, the plan of which could not be sketched without excavation; the pottery found here was dated to the Israelite period III. The field-wall of farm H is built of coarse, unequal boulders, many of them standing upright. The runoff water supply for these terraces was collected mainly from two medium-sized wadis, which also contain many other terraces in their upper reaches. The terraces are again simple stone structures, similar in construction to those of farm F. For purposes of comparison an isolated Roman farm unit, farm I, which is situated east of fort E, was also investigated and sketched. It contains a small one-room house, in which Roman pottery was found. The house is associated with a field-wall, built of two faces of well-laid stones; the space between the faces was filled with smaller stones. The walls of the house are constructed in the same manner. The terrace walls in the small steep wadi are also of similar construction, but they had been repaired through the ages, and no definite date could be established for them. The differences noted here between the Iron Age and Roman-Byzantine construction on farm I conform to those recorded above on farm G.

Farm I receives its runoff water supply from the wadi running through it. The wadi is also cultivated in its upper reaches.

Farm J is another farm unit, situated just south of fort E and at the foot of the buildings described above (Pl. 46B). Although no farmstead was located

within the farm unit, it may well have been connected with the many Iron Age buildings near fort E described above, since a fair amount of Iron Age pottery was found within the limits of the walls of this farm unit. The stone field-walls again consist of a single row of upright stones; a few of them seem to have been repaired at a later date and are built in courses.

Terraced fields. As stated above, a considerable number of the head-gullies of the Ḥorshah Valley was once cultivated with the aid of simple step-like unfenced terraces. No direct relationship could be established between these terraces and any nearby ruins. Many of the terraces, however, are of the simple, coarse, and unlayered type, which seems always to be associated with the Iron Age settlers, since only buildings from the Israelite period III are to be found in the vicinity of these terraces.

The cisterns (Pl. 46A; Figs. 22, 24). A prominent feature of the surroundings of fort E are the many water cisterns. Hence the name *Beerot* (wells of) *Lot*, despite the fact that no springs or wells exist here, and the local water supply is wholly dependent on cistern-stored surface runoff.

Many cisterns were counted in an area of eight square kilometres. They fall into two types: those dug into the marl, and called the 'open type', and those cut in the rock and called the 'closed type'. A detailed description of some of them and a general plan of their development might be of interest here.

The cistern situated between fort E and the above buildings (Fig. 24) is the largest yet encountered. It belongs to the open type and is of semi-circular shape, dug into soft marl or chalk (see below). The wall is now supported by a stone lining identical in details with that of the open cisterns found in area A (see above, p. 241). Stone steps lead into the cistern, and a double circle of boulders standing around the circumference of the cistern served as a boundary wall. The dimensions of the cistern[18] are 12 m.×20 m. and 5 m. depth; capacity is thus about one thousand cubic metres. Five water channels drained the runoff from the hillsides to the cistern; they led the water into silting basins before it was directed to the cistern.

[18] Dimensions refer to present measurements of the cisterns; but a certain amount of change in the cisterns' shape owing to repairs over the millennia has to be taken into account. The depth also refers to the present state. The bottom was not always dug up to measure the amount of silting, but where this was done, recent silt accumulation was found to be less than 50-100 cm. in depth.

Another cistern is situated on the northern side of the ridge from fort E and is also dug out of the soft marl, with the walls lined with stone. Storage water is supplied by three channels (with silting basins), which drain the other side of the hill commanded by fort E. The ancient channels near the cistern are at present destroyed, and the original layout of the channel entrance could not exactly be reconstructed.

The cistern visible at the upper left of the air photograph (Pl. 46B) is cut in the rock. In this case, a deep cavity was dug into the soft chalk which lies below a hard limestone layer, which served as a roof. (Possibly a natural cave was enlarged and adapted.) The open down-slope is built up to the roof and protected inside by a stone lining. This wall also forms a support for the roof. The roof was moreover supported by two columns built of medium-sized stones. An opening was left at the joint between the natural rock-ceiling and the built wall so that water could enter the cistern and later be drawn out. The runoff water for the cistern is supplied by a channel leading from a small gully. The gully contains cultivated terraces, of unknown date, above and below the cistern.

Another cistern, which was encountered nearby, is at present of the open type and without a roof. However, this cistern was originally cut in the rock in the same way as the one described above, but in the course of time the roof has collapsed. Two metres from the north corner of the cistern, a stone pillar remains supporting the remnants of the ceiling. The rock debris from the collapsed roof has been used to reinforce the walls.

APPENDIX II:

FINDS OF THE MIDDLE BRONZE AGE

Groups of round stone structures, built by placing oblong stone boulders upright, are typical of the Middle Bronze habitations. Sometimes small square buildings are found, joined to one or several circular stone structures. These seem to be single-room structures with adjoining livestock corrals. In particular cases groups of square rooms have an enclosure in front, which may have been used as a common livestock pen.

It is difficult to understand the function of these round stone structures without excavating at least a few of them. One such round stone mound was excavated by Beduin for use as a grain store, about one kilometre north of fort E. It consists of a circle of large, standing stone boulders 60-80 cm. high,

facing the centre of the circle; they are supported by smaller stones from the outside (Pl. 48 B). The diameter of the circle is about three metres, and it stands on the flat bed-rock which had been cleared of all the overlying soil and debris.

The heap of debris excavated by the Beduin was found to contain some greyish-black pottery with large white grits. This pottery is typical of the Middle Bronze Age I in the Negev. Three parts of a hand-mill stone were also found, as well as part of a flint sickle (Pl. 52 D, F).

These agricultural implements from the Middle Bronze Age indicate the possible occupations of the Middle Bronze Age I inhabitants of the Negev. Besides cattle-raising, they may have been engaged in some form of agriculture in permanent and stable settlements.

These settlements would require water cisterns, as no other water sources were available. This assumption, however, is not yet supported by the meagre evidence collected up to now. Further investigation and excavation of the Middle Bronze Age I habitations are required.

Other Middle Bronze Age I Finds

Middle Bronze Age I habitations were not surveyed in detail during the present stage of our study, but those met with in passing have been briefly recorded. Some Middle Bronze Age I habitations are perched high on ridges and cliff tops, while others are found on the slopes and even in the bottom of valleys. They are all unfortified; separate stone circles and groups of round stone structures are scattered over comparatively large areas. The following sites were noted:

Site No. 15. A small settlement consisting of stone circles on the ridge between forts A and B (Pl. 52 C; Fig. 4).

Site No. 45 (map ref. 13250063), opposite site 15, on the eastern side of Mishor ha-Ruaḥ, is a fairly large settlement, composed of some tens of stone circles. One of the Middle Bronze Age I structures here consists of a rectangular three-room house with a large round yard in front.

Site No. 22 (map ref. 12620037) is composed of about ten stone circles on a hill c. 3 km. south of the modern highway.

Site No. 24 (map ref. 12099999) is a settlement of stone circles, one kilometre north-east of farm F in Wadi Tubeik.

Site No. 39 (map ref. 11609950) is a very large settlement of stone circles, opposite fort D.

Site No. 33 consists of some stone circles, one kilometre north of fort E (among them the excavated one described above, pp. 247-248) and more circles just south of fort E.

Site No. 37, situated at Har Ramon itself and in its immediate surroundings, has a large group of round stone-built structures (Pl. 47 A, B).

Sites Nos. 30-31, on Rosh Ḥorshah and nearby hills, have two additional groups of round stone-built structures.

K-line. A most interesting Middle Bronze Age I find is the long wall (K-line)[19] which joins the two latter Middle Bronze Age I sites, Nos. 37 and 30-31 (Figs. 21, 23). This wall follows a perfectly straight line for c. 4.6 km. between Har Ramon (1035 m.) in the direction of Rosh Ḥorshah, to the spot height 1009 m. Regardless of topography, it crosses ridges and wadis. The wall is in a ruined state, but can be clearly seen as a thin greyish line from either end (Pl. 48 A). It is 1.5-1.7 m. broad, built of medium unhewn stone. At present only three layers of stones at most are left of the wall, and most of the stones have been scattered. Where the wall ascends a slope, its base was built in step-like terraces, but it is not known whether the crest of the wall itself was also stepped.

At the east and west ends of this wall are large Middle Bronze Age I structures, mainly massive stone circles (tombs?) built along ridges, and settlements nearby. The eastern end joins the easternmost and topographically highest round stone cairn of the Har Ramon Middle Bronze Age I group. This well-preserved cairn (No. 37) is about 8.5 m. in diameter; it serves at present as the base for the triangulation marker (Pl. 47 A, B). Only few sherds were found at this site,

[19] The first to draw attention to this wall was Mr. J. Feldman, of Kibbutz Revivim. Mr. E. Alumi of Tel Aviv found it independently and pointed it out in the field. Mr. A. Soferman of Jerusalem also noticed this wall on air photographs and claims to have traced it thereon for a length of eight kilometres.

but all those found belong to the Middle Bronze Age I. The most typical are: (1) A wheel-made hole-mouth rim (Pl. 52:1); (2) a fragment of a store jar with combed decoration (Pl. 52:2).

At its western end the wall also meets a circular stone cairn (No. 30, Fig. 23), the highest in the group. Other small structures were observed along the wall and may have been rooms or towers (No. 38). These require further investigation for final identification.

A water channel, crossing the wall about one kilometre west of Har Ramon, definitely relates to a later period than the wall itself, as the wall is destroyed in this place. The channel was constructed not later than the Roman-Byzantine period—another proof of the early origin of the wall.

It is clear that the K-line is a wall built at the southern end of the Negev highlands. Its function was probably to serve as a boundary wall to protect the settled Negev population against the marauding nomads of the Sinai and the 'Aravah deserts.

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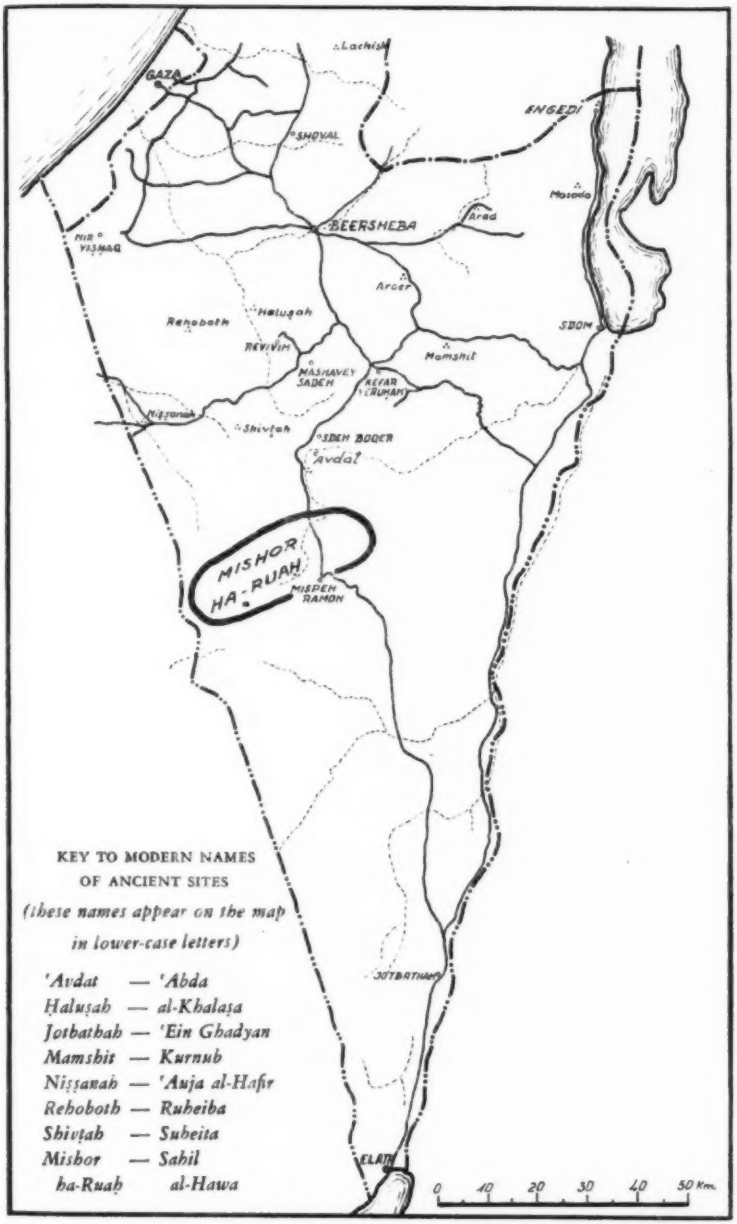


Fig. 1. Map of the Negev, showing the position of Mishor ha-Ruaḥ.

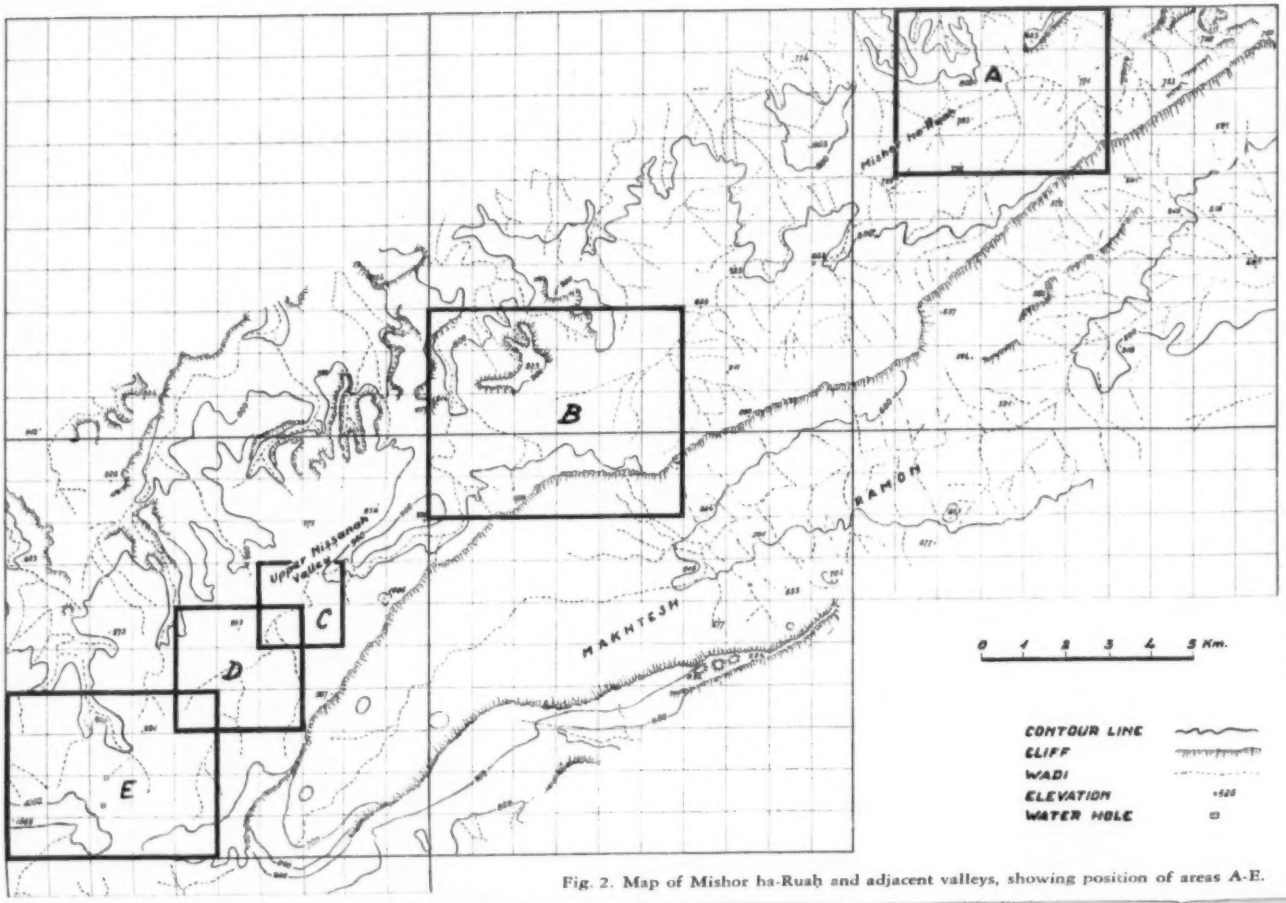


Fig. 2. Map of Mishor ha-Ruah and adjacent valleys, showing position of areas A-E.

Fig. 2. Map of Mishor ha-Ruaḥ and adjacent valleys, showing position of areas A-E.

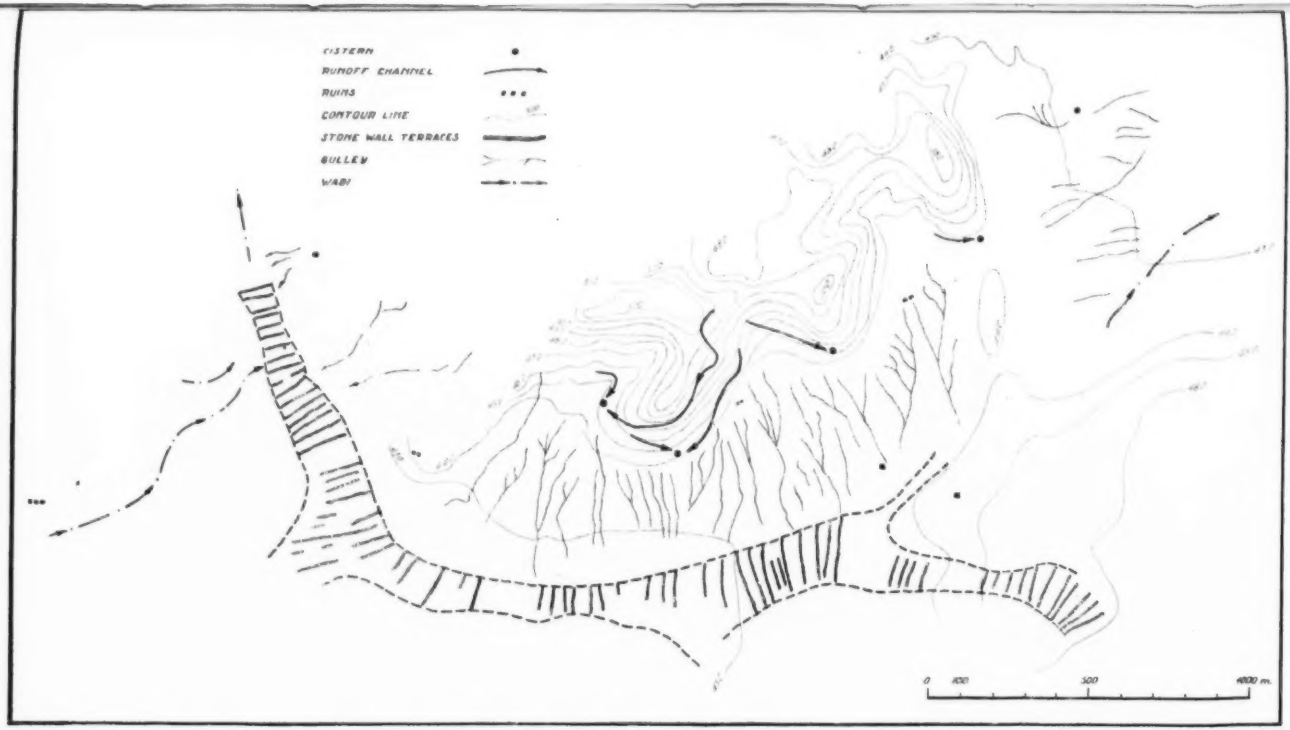


Fig. 3. Part of Mishor ha-Ruaḥ. Note terraced bottom lands and cisterns on the slopes.
For photograph of the same area, see Pl. 42.

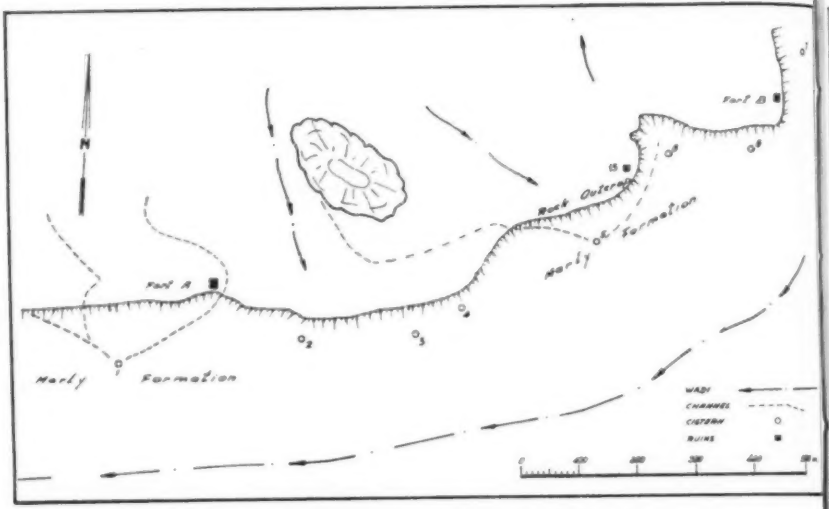


Fig. 4. Part of area A, with forts A and B, cisterns, and channels. See Pl. 43.

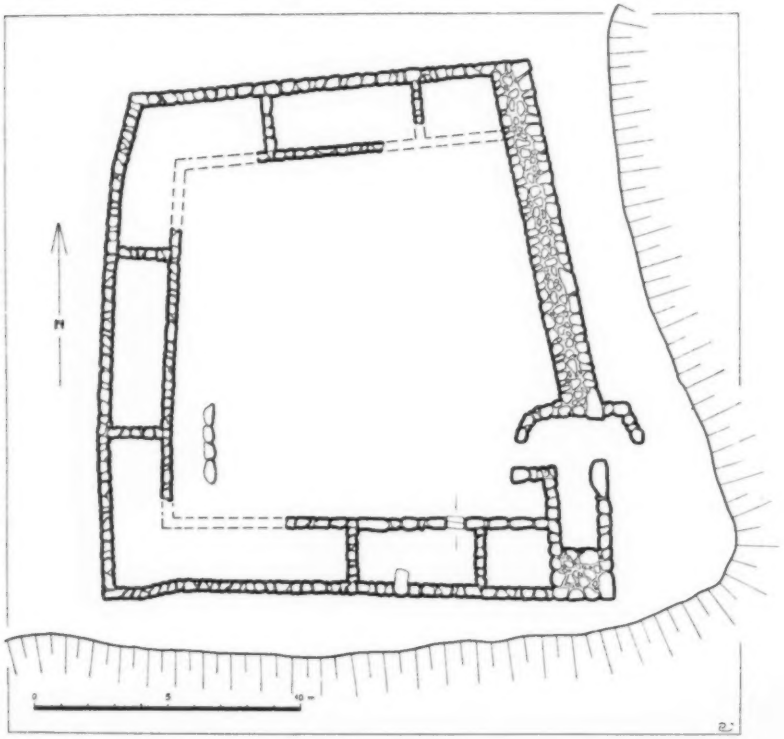


Fig. 5. Fort A (area A).

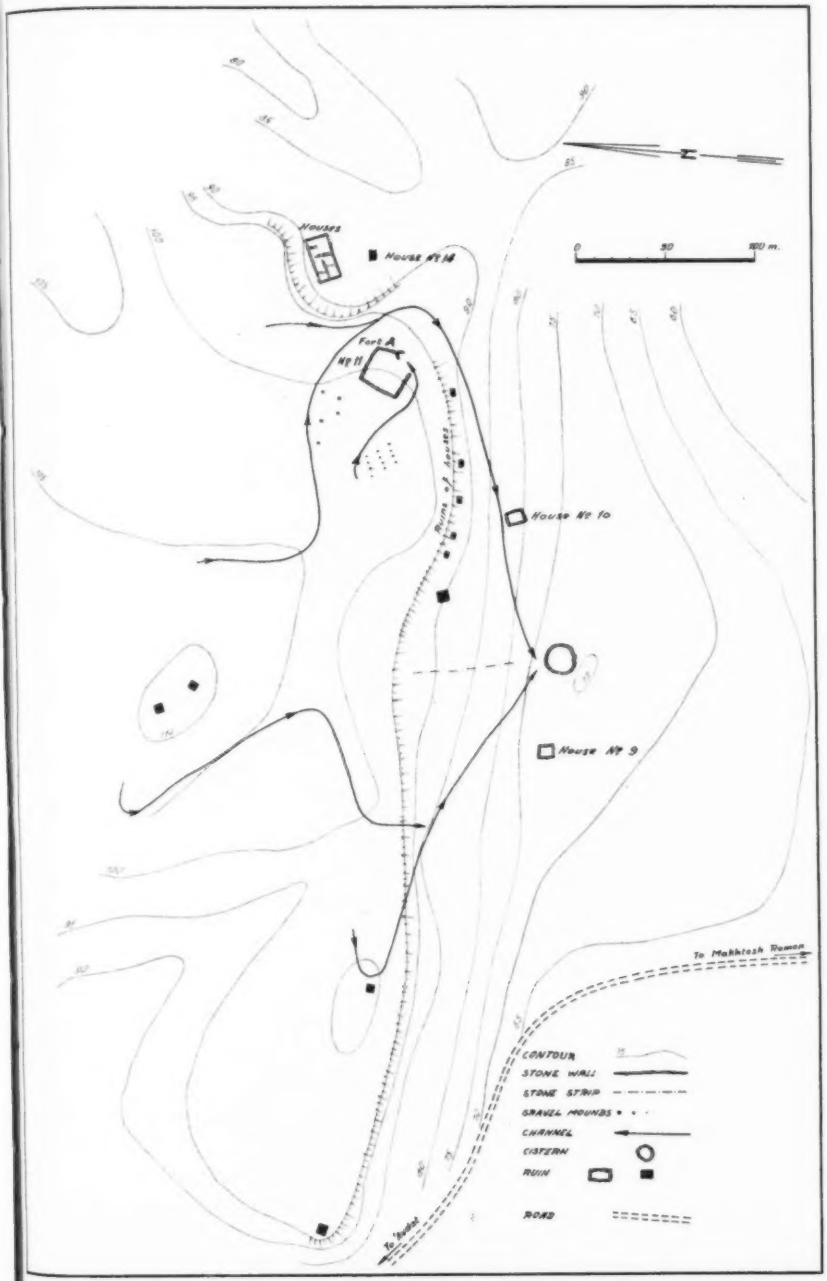


Fig. 6. Fort A (area A) and surroundings. Note the fort protecting the houses and cisterns.

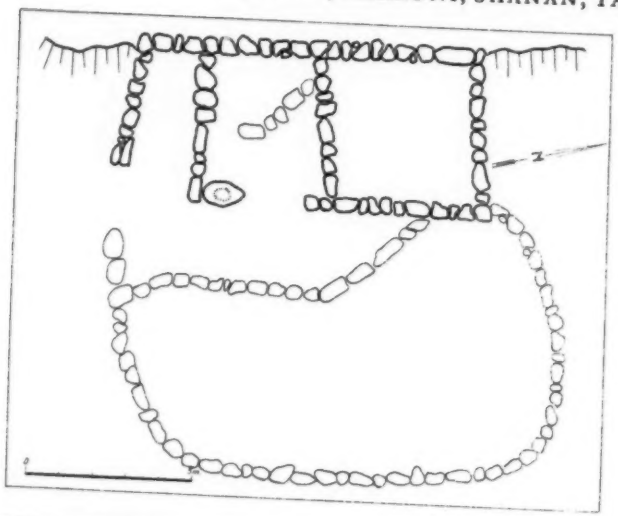


Fig. 7. Plan of
No. 14 (ar

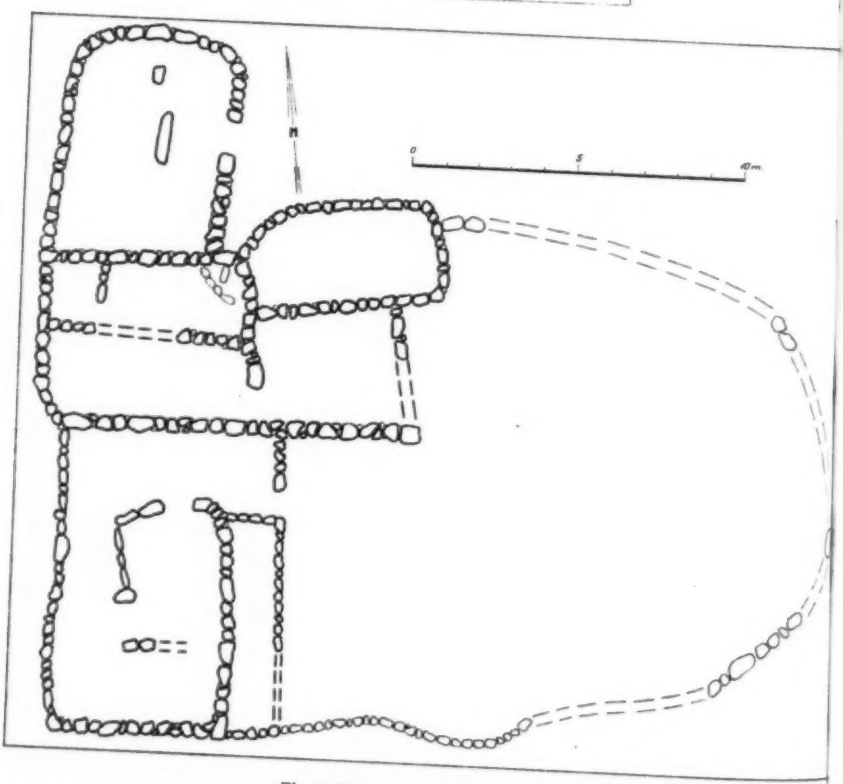


Fig. 8. Plan of house No. 9 (area A).

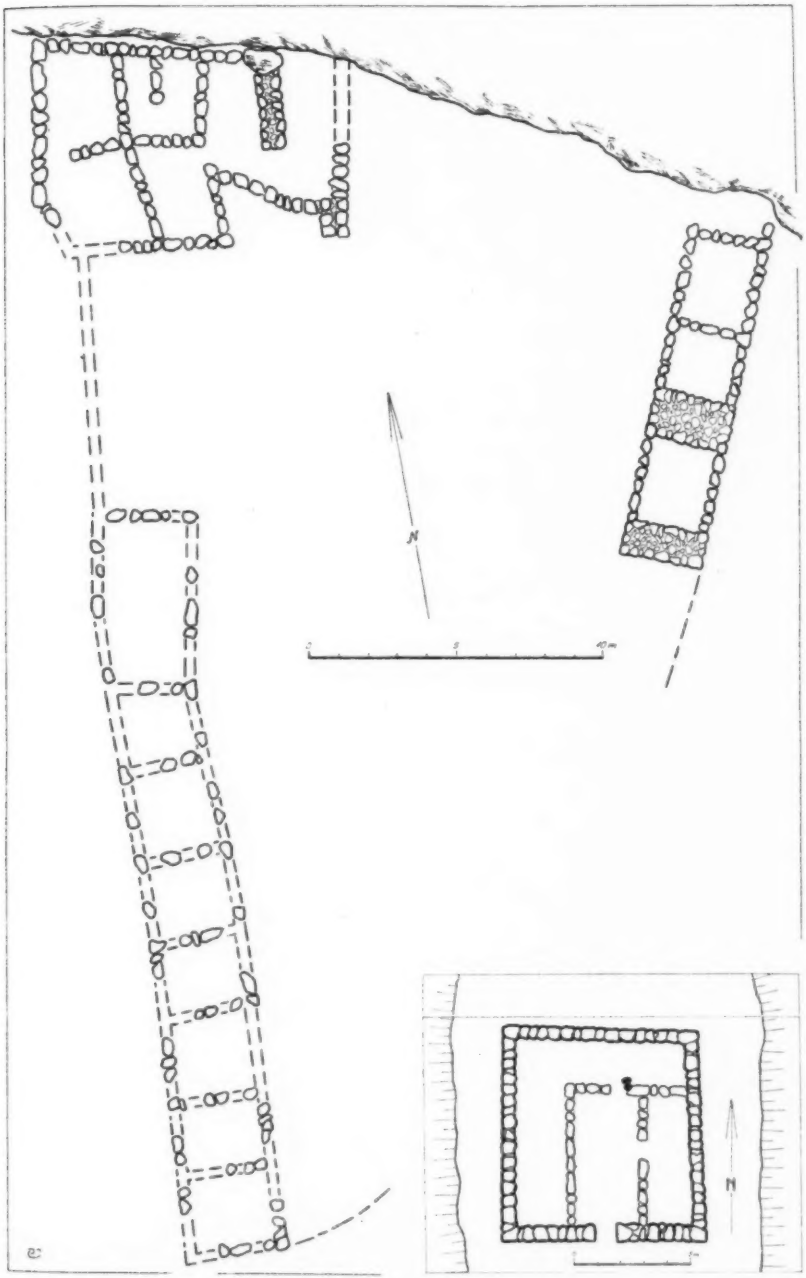
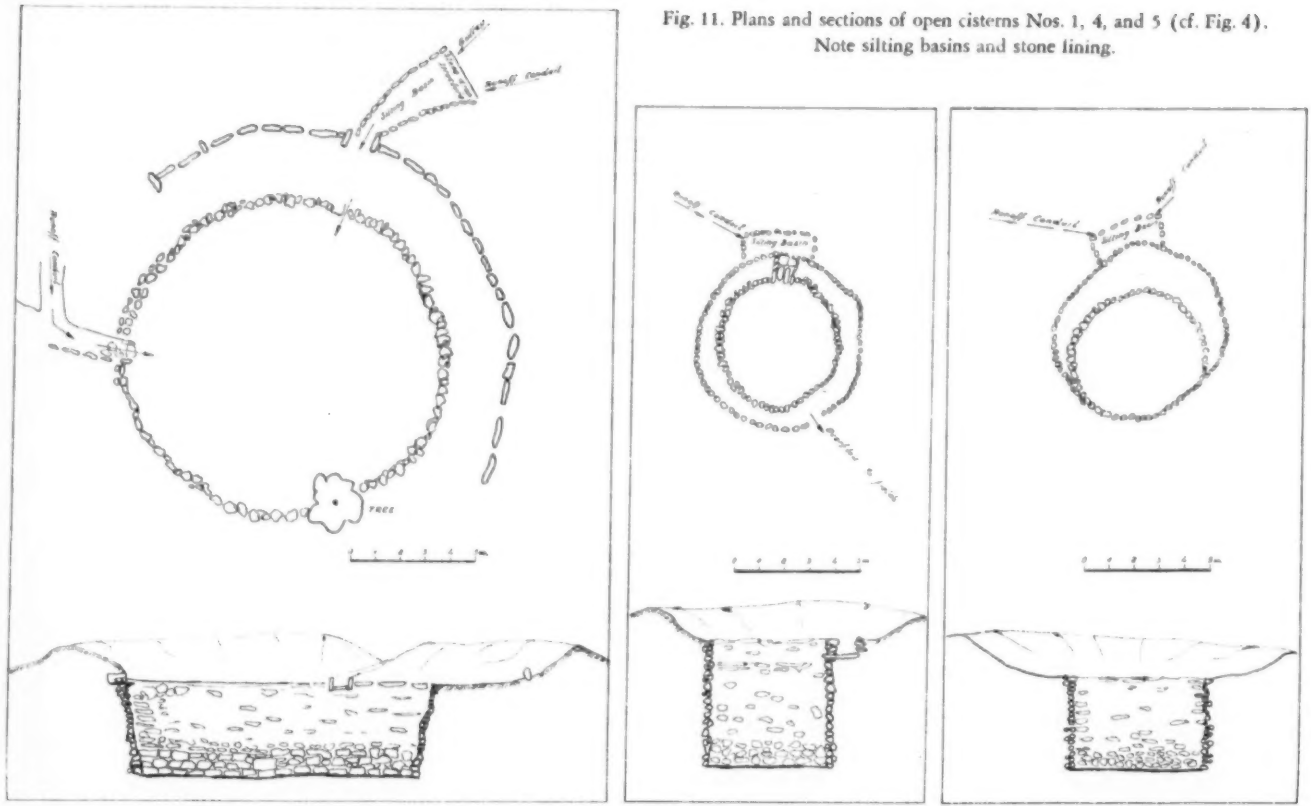


Fig. 9. Plan of house No. 10 (area A).

Fig. 10. Plan of fort B (area A).


Runoff Conduit
Silting Basin
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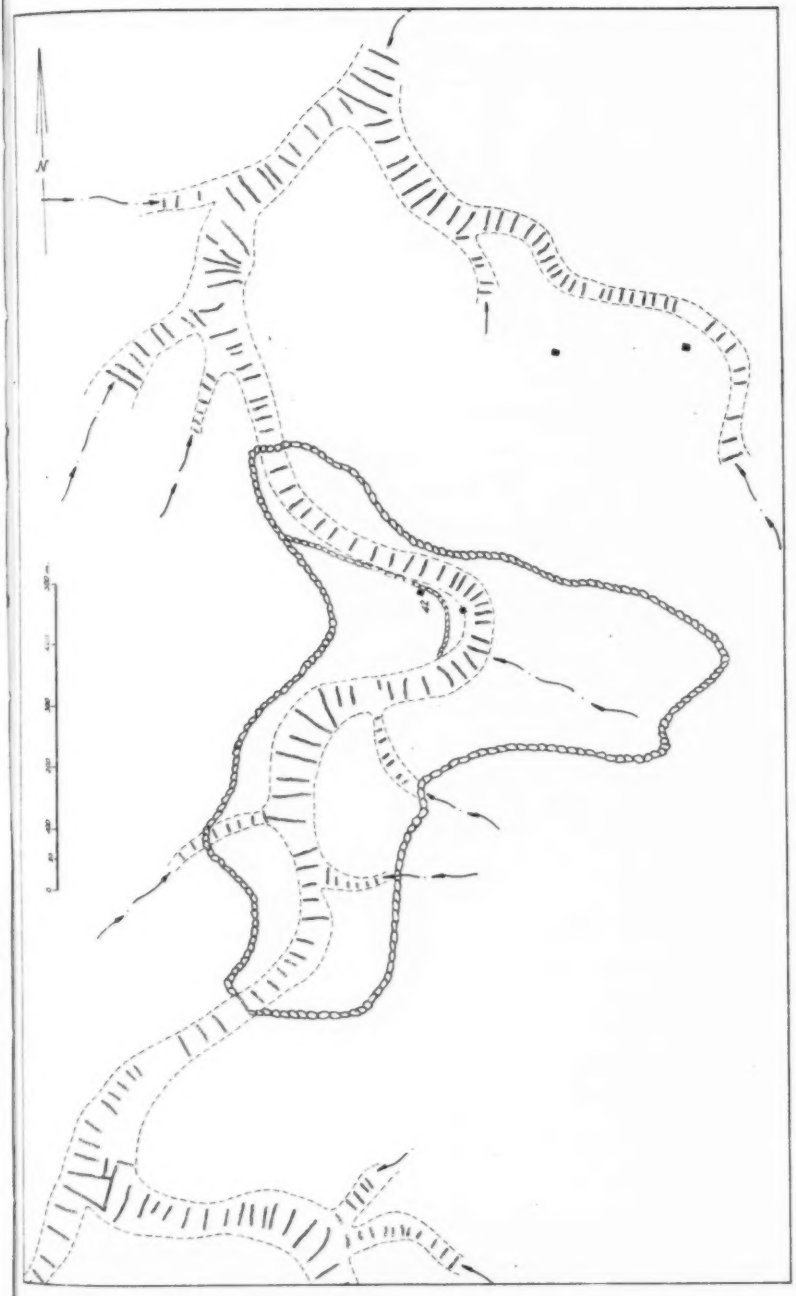
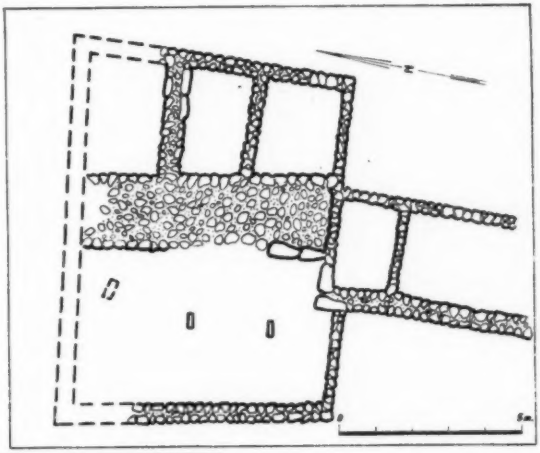


Fig. 12. Sketch of farm G (area C). Note stone wall, terraces, and the two houses.

Fig. 13. Farm F (area B) with farmstead (No. 26), and surroundings. See Pl. 45 A

Fig. 14. Plan of building No. 26 in farm F (area B).



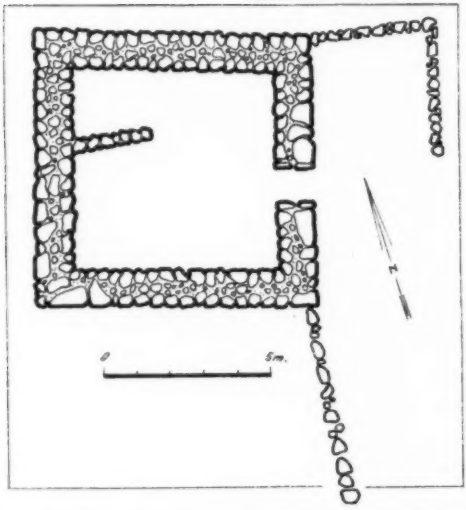
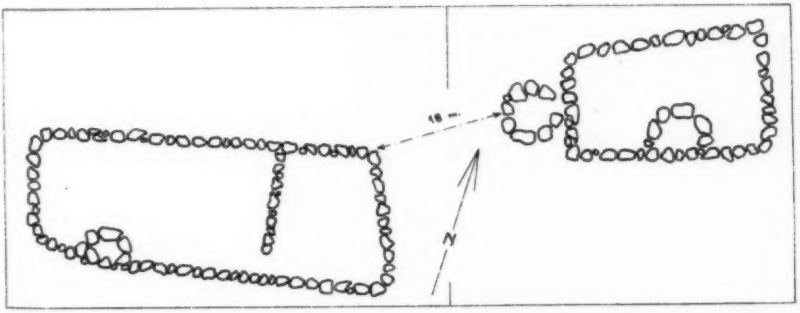


Fig. 15. Plan of fort D (area D).

Fig. 16. Plan of two houses No. 40 near fort D (area D).



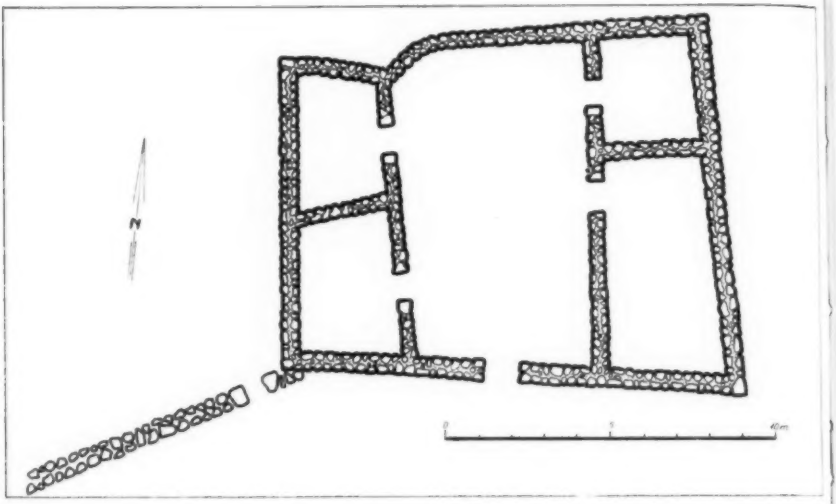


Fig. 17. Plan of Roman house No. 42 in farm G (area C).
Note the farm fence and the opening leading to the house.

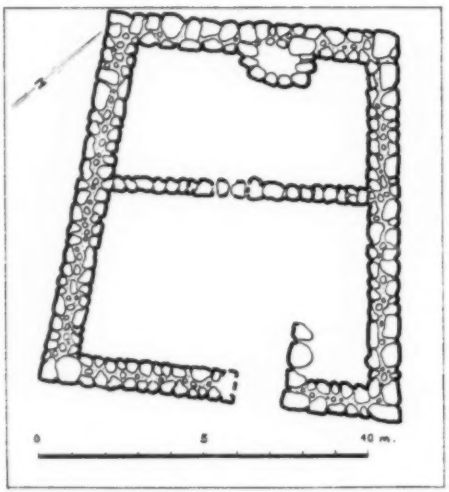


Fig. 18. Plan of house No. 29 (area E).

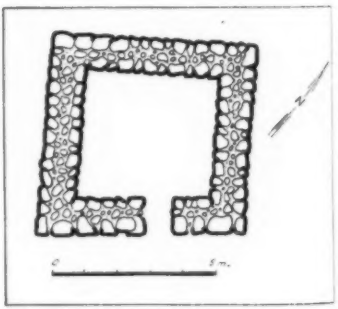
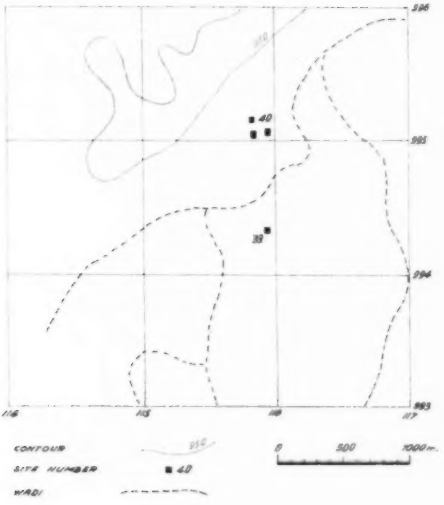


Fig. 19. Plan of fort E (area E).

Fig. 20. Area D.



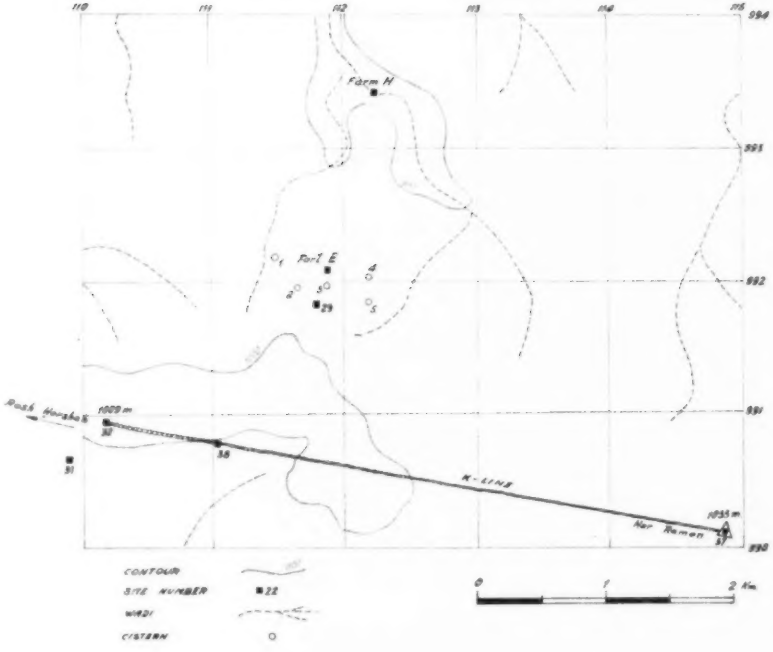


Fig. 21. Area E showing the vicinity of Beerot Loṣ and the K-line to the south of it.

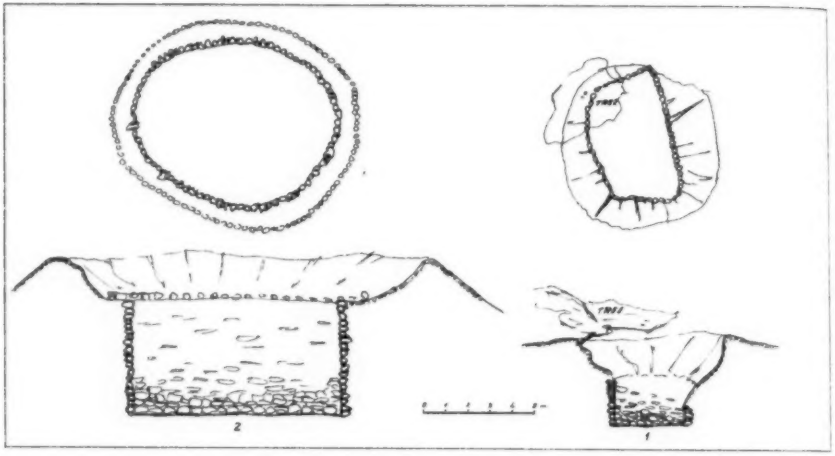


Fig. 22. Plans and sections of two cisterns at Beerot Loṣ (area E).

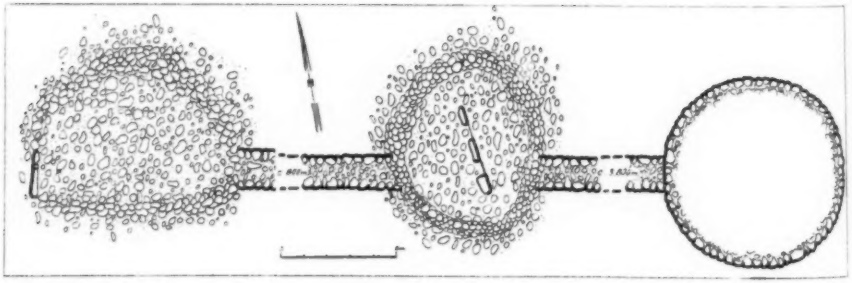


Fig. 23. Plan of three circular structures connected with the K-line; for their position, see Fig. 21.

The K-line is drawn in detail only where connected with the structures; the sections between these (c. 800 m. between 30 and 38, c. 3800 m. between 38 and 37) are indicated by two dotted lines.

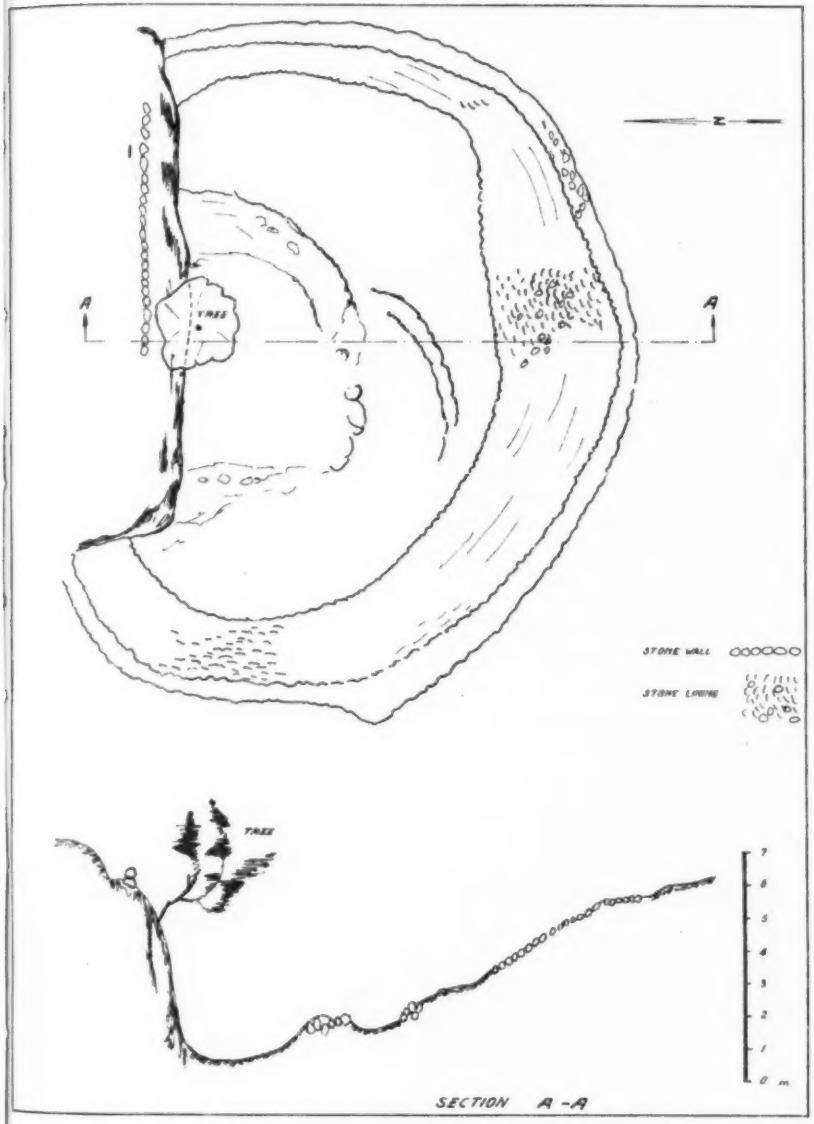


Fig. 24. Plan and section of cistern at Beerot Loṣ (area E).

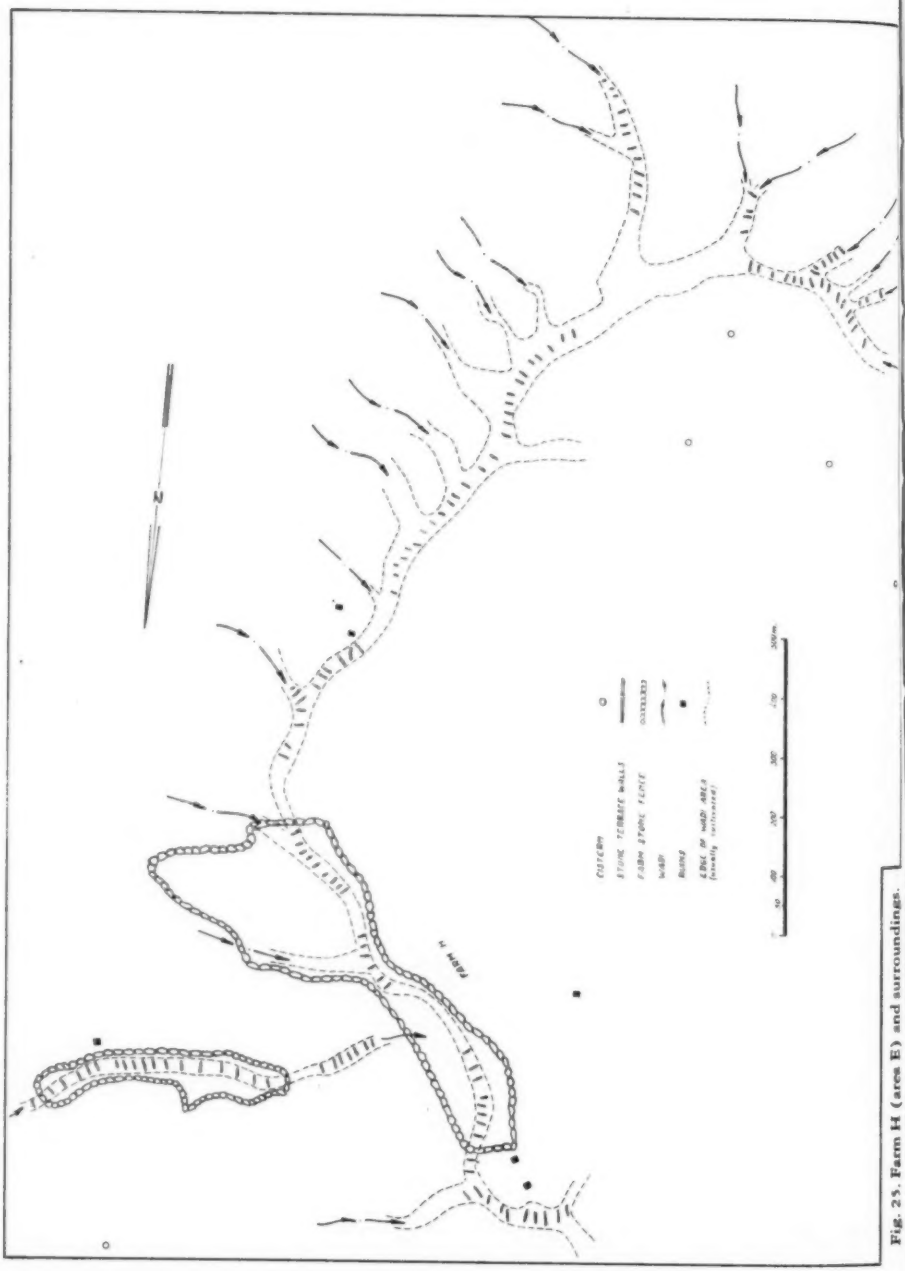


Fig. 25. Farm H (area E) and surroundings.

NOTES AND NEWS

METEOROLOGY

*The Rainfall Year 1957/58**

The 1957/58 rainfall year started early: at many stations light rains fell in September 1957, in some cases amounting to several millimetres.

No general statement can be made about October, as rain occurred very locally; even amounts received at places belonging to the same region were very different and deviated greatly from average values. Messilot, for example, in the Beth Shean Valley, received only 4 mm., while Ma'oz Ḥayim in the same region recorded 64 mm., including 59 mm. which fell in the space of 35 minutes (as recorded automatically), when a cloudburst occurred on the 17th. Such intensity belongs to the highest registered in this country.

Rainfall in November was generally about normal; in some localities it was deficient (Tel Aviv 30-40 mm.) and in others excessive, particularly in the southern coastal plain (Kokhav 161 mm.). On the 6th or 7th short rainfalls of highest intensity were again registered in the Jordan Valley: 51 mm. within half an hour at Afiqim and 52 mm. within 20 minutes at Ashdot Ya'aqov; such cases were accompanied by thunderstorms, heavy hail, and floods.

December 1957 and January 1958 were considerably rainier than average in almost every part of the country. The heavy rainfall at the beginning of December (144 mm. at Lod Airport on the 6th alone) gave rise to floods in various regions, chiefly in the central coastal plain. The rain of 29-30 January again caused floods in these areas, although its daily amounts were not very large, for it fell on soaking wet soil. As for the Negev, there was a great deficiency in December (Beersheba receiving only 14 mm., Revivim only 2 mm.), but rainfall in January was normal. Snowfall in the mountains, hail and many thunderstorms were also a feature of January.

February and March, on the other hand, were very dry months. In each of them only a few places received more than 30 mm., while in the southern coastal plain and the northern Negev, less than 5 mm. were registered.

This state of drought lasted until 20 April and caused grave damage to agriculture. Rainfall in April was also deficient, except at some stations in the Judean hills and in southern regions. A general deficiency in April would not be worth mentioning in normal years, but in this year it followed a similar situation in the preceding two months.[1] The number of rain-days in February, March, and April

* Cf. *IEJ*, 7, 1957, pp. 262-263.

[1] The hot, dry weather known as *sharav* already prevailed at the end of February—an unusual occurrence—raising the temperature at ha-Qiryah to 33.2° C, which is the highest maximum reached for February in the Tel Aviv-Jaffa area during 56 years of measurements. March, in which *sharavs* are normally not yet well developed, was distinguished by a considerable number of such days, and at its end temperatures again reached new monthly maximum values (Mt. Tabor 33.8° C). April was also characterized by a larger than usual number of *sharav*-days, but there were no new record temperatures.

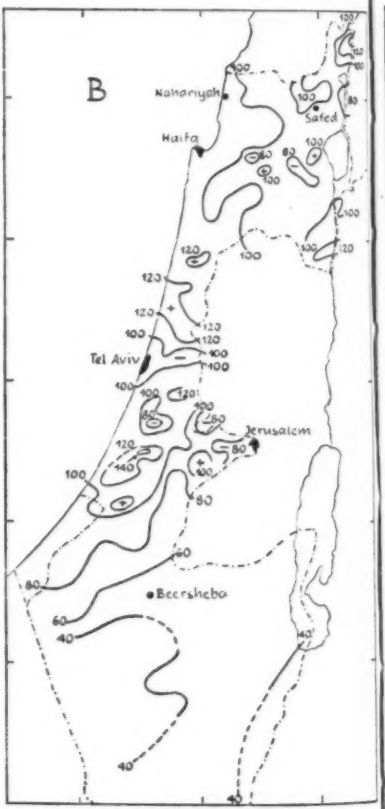
Fig. 25. Farm H (area E) and surroundings.

was also far below normal; in addition, these months were warmer than their respective averages, which increased the need for water and the damage caused by drought.

Rainfall in May was scanty on the whole, but in the Huleh area heavy rains accompanied by thunderstorms occurred on the closing days of the month: 96 mm. at Qiryat Shemonah (of which 81 mm., including hail, fell in 1½ hours), 51 mm. at Kfar Szold, 45 mm. at Kfar Blum, etc. Rainfall in neighbouring regions, like the eastern Upper Galilee and Central Jordan Valley, was less intensive. The intensities in the Huleh area approach the maximum values expected on the western margin of the Jordan Rift at the beginning of the rainy season (see October and November 1957) and at its end.

Annual rainfall amounts in 1957/58 were thus approximately equal to the

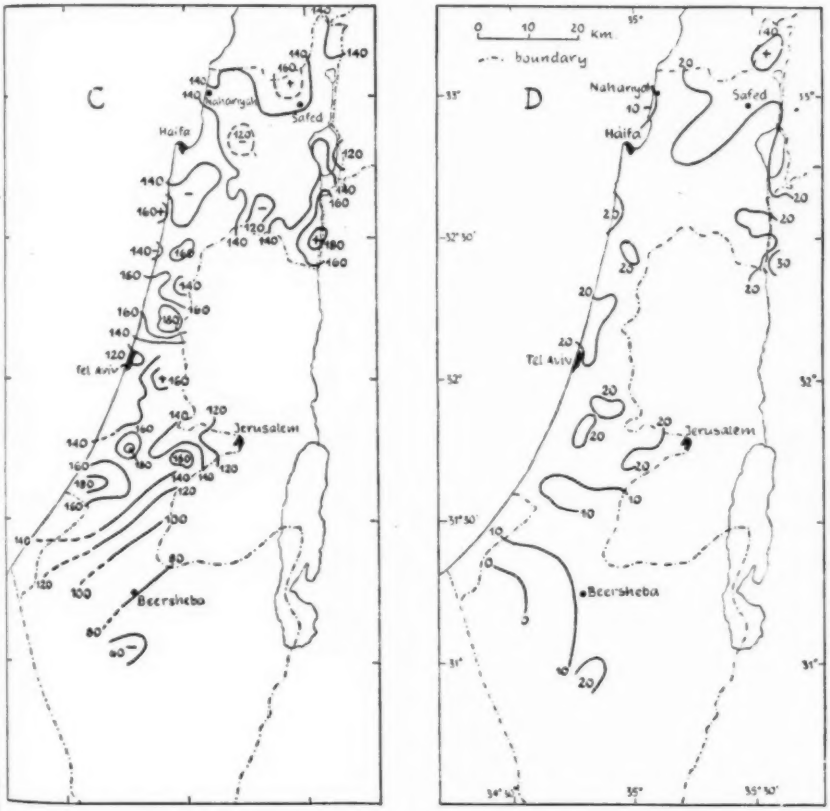
Annual rainfall 1957/58 in mm.
Maximum: Beit Jann 934 mm.
Minimum: Timna' 4 mm.



Annual rainfall 1957/58 as percentage of average for 1921-1950.

average values for the period 1921-50 at most stations, except in the Negev, where only half the average or less was received (see maps and table). Notwithstanding these average total amounts, drought conditions prevailed. When dividing the annual totals in two parts, it appears that rainfall during September 1957-January 1958 expressed as a percentage of the average for the same period was above 100 at all stations (at some reaching 180 per cent.), except in the Negev.

The corresponding percentage for February-May 1958 was, on the other hand, very low in most regions (10-25 per cent.) because of the severe drought which prevailed in the country, particularly in the Negev and Lower Galilee. Beersheba, the oldest observing station in the Negev (in operation since 1921) registered in 1957/58 only 102 mm.—an absolute annual minimum.



Rainfall September 1957 to January 1958 — Rainfall February to May 1958

as percentage of average totals for the same periods for 1921-1950.

(Maps A-D compiled by N. E. Rosenan, drawn by Miriam Karmon)

Station	RAINFALL 1957/58					
	Sept. 1957-Jan. 1958		February-May 1958		Sept. 1957-May 1958	
	Amount mm.	% of average	Amount mm.	% of average	Total amount mm.	% of annual average (1921-50)
Coastal Plain, N to S						
Nahariyah	592	134	20	10	612	96
Haifa, Mt. Carmel	630	137	31	16	662	100
Natanyah	676	179	26	19	702	136
Tel Aviv, ha-Qiryah	430	114	30	20	460	86
Beer Tuvyah	502	156	28	19	530	113
Hill Region						
Safed, Mt. Cana'an	635	147	74	25	709	97
Affulah	376	115	21	12	397	78
Jerusalem, Prophets' Street	338	111	63	26	400	73
Jordan Valley						
Daphnah	477	145	103	43	580	102
Tiberias	387	142	32	19	419	95
Tirat Zvi	275	156	27	24	302	105
Negev						
Urim	148	107	0	0	148	1
Beersheba	93	80	9	11	102	51
Mashavei Sadeh	34	62	13	26	47	45
Elath	4	33	1	6	5	17

The above table therefore includes not only annual rainfall totals at selected stations and their percentages of average values—as given usually—but also the corresponding data for each of the two parts of the 1957/58 rainfall year.

(Communicated by J. Katsnelson, Israel Meteorological Service)

ARCHAEOLOGY: EXCAVATIONS

Azor

The Department of Antiquities undertook a trial excavation of three different sites (areas B, C, D) at Azor, several km. SE of Tel Aviv, in May 1958, under the direction of M. Dothan, assisted by Sara Barkai, Ruth Soffer, Varda Zvilichovsky, Lea Ofer, Messrs. A. Drucks and S. Moshkovitz (surveyor). Photographs were taken by Miss P. Dorn. An average of 30 labourers were employed daily, being contributed by the Ministry of Labour.

Area B. Inside a quarry, near the main Jerusalem—Tel Aviv highway, soundings were made near the tomb-cave excavated in 1958 by J. Perrot.[1] Remains of a settlement were found here, connected—at least in its lower stratum—with the tomb-cave. In the upper stratum remains of a Late Chalcolithic apsidal building on stone foundations were discovered.

In *area C* a burial cave was explored, dated by pottery found in a pit in its floor

[1] Cf. *IEJ*, 8, 1958, p. 133.

to the Hyksos period. The cave was cleared, it seems, at the beginning of the Late Bronze Age, and from this period down to the Philistine (Iron Age I) period, it served as a funerary cave for human beings and animals, in particular for horses and asses. In the lower stratum, 21 scarabs were found near the horses' skeletons, belonging to the Hyksos and the New Kingdom periods. The grave was evidently intended especially for horses; a relatively small number of human beings (their masters ?) was buried with them. Little pottery was found.[2] In the upper stratum of the cave, a Philistine burial was found, together with an animal burial.

In *area D* about 30 sq. m. were dug. In the upper stratum tombs were discovered, dating to the Middle Ages (from the eighth to the fifteenth centuries A. D.). They were generally ranged underneath and close to a single row of stones; some pottery was found here, together with jewellery, particularly beads, rings, bracelets, and a few coins.

At the depth of 1.5 m. earlier burials were discovered, partly damaged by the upper tombs. About 30 graves were found, belonging to the period from the beginning of the twelfth to the middle of the tenth century B. C. In those graves which were reasonably well preserved, it was possible to trace an identical method of burial. The bodies were laid out straight on their backs, almost in every case in an east-west direction, facing east or south, with their hands tight to the body, their heads a little higher. In every grave a few objects were found, mostly pottery, metal, and stone objects, or some jewellery. These objects were usually found near the head and the right hand of the deceased; in a few cases rings and ear-rings were found still *in situ*. The earlier pottery in this area is Philistine and parallels strata XII-XI in the nearby Tell Qasîle. In the burials from the second half of the eleventh to the tenth centuries B. C., there were also found many objects of Cypro-Phoenician provenance (including juglets of the 'white painted' and 'black on red' types), with the local pottery. To judge from the context there can be no doubt that the first appearance of Cypro-Phoenician pottery here is to be dated to the end of the eleventh or to the beginning of the tenth century B. C. at the latest. Among the other discoveries a bronze mirror should be mentioned, the only contemporary parallel to which was published from Enkomi. With these burials were found five scarabs, dating mostly to the 19th dynasty, and three cone-shaped seals with animals engraved on them; these seals resemble those found in strata VII-V of Megiddo, at Tell Abu Hawam, and at Enkomi. The main finds from the graves of area D must be related to the time of King David (Tell Qasîle, stratum IX). They testify to the flourishing commercial relations between the coastal plain and the Phoenician coast and Cyprus right at the beginning of the Israelite Monarchy.

As a result of the season of excavation we can say that Azor, which was already settled in the Chalcolithic and Early Bronze periods, also flourished in the

[2] For a similar Late Bronze Age burial of horses and asses found at Tell el Ajjul, see F. Petrie: *Ancient Gaza*, I. London, 1931, pp. 4-5.

Middle Bronze Age II and in the Early Israelite period (Iron Age I). It is known from ancient sources only as a city of Dan through an addition in the Septuagint translation of Joshua xix, 45, and from Sennacherib's inscription as a town of Zidqa, king of Ashkelon. Now it appears as a flourishing city also in the period of the Israelite conquest and in the period of the United Monarchy.

(Communicated by M. Dothan)

Kfar Gil'adi

Excavations were carried out by J. Kaplan on behalf of the Israel Exploration Society in the area of Kfar Gil'adi in Upper Galilee in September 1958.

South of the village were uncovered the remains of a mausoleum dating from the first century B.C.; it measured 9×9 m. The lower course of the structure was preserved in its entirety to a thickness of 2 m.

The construction consisted of two facings of large dressed blocks with a filling of small stones between them. On the east side the sill of the entrance was uncovered, and near it were found large stone mouldings belonging to the upper part of the structure. In the centre of the mausoleum was found a sarcophagus with a Hebrew inscription on its side; this is now in the course of being deciphered. Around the mausoleum, remains of additional structures project from the ground, and there is a small artificial mound and a spring in the vicinity. The surface of the mound yielded potsherds of the Iron Age II and of the first century B.C.; coins of the city of Tyre, including a shekel of that city, were also found in the area. On a lofty hill north of the locality there is a large ruin of the first century B.C. known as Khirbat Nihah. There are therefore grounds for supposing that the mound contains remains of the Israelite city of Janoah situated between Abel-Beth-Maachah and Kedesh (2 Kings xv, 29).

On the hill north of the village, near the spring of Roahinah, two small-scale excavations were carried out. In the first area, north of the spring and near the road leading to Metullah, an Early Bronze Age stratum was uncovered, containing sections of walls and granaries. Below this was a second stratum, containing sherds belonging to the 'Esdraelon culture'; and below this, on the rock face, a few Neolithic and Chalcolithic sherds.

In the second area, which faces the high mound of Abel-Beth-Maachah, two strata were revealed. In the upper one appeared building structures of the Chalcolithic period, and beneath it remains of a settlement of the Yarmukian phase of the Neolithic Age. This stratum yielded a figurine of baked clay with head and legs missing, portraying a fertility goddess; her arms support her naked breasts and belly, and her thighs and rump are very prominently represented.[3] Among the other finds were potsherds and Neolithic flint implements, including sherds of a type known hitherto only from excavations in Syria.

(Communicated by J. Kaplan)

Tell Gath

During the third season[4] on this site (20 May-17 July 1958), the work was

[3] A similar Yarmukian clay statuette was discovered by the excavator at Tel Aviv in 1950, cf. *EI*, 2, 1953, p. 159 and Pl. XIX: 1 (Hebrew).

[4] Cf. *IEJ*, 7, 1957, pp. 264-265.

directed by S. Yeivin, Director of Antiquities, with the assistance of S. Levi, Deputy Director of the excavation. The staff consisted of Ruth Soffer, Efrat Yeivin, Varda Zvilichovsky, Messrs. S. Amit (surveyor), A. Drucks, G. Edelstein, S. Levi, J. Rovell, and Z. Yeivin. The workmen were again supplied by the Ministry of Labour, and the Jewish Agency made a grant-in-aid for the project. Work was carried out in four areas:

Area A (NW corner of the acropolis). Here the relationship was examined between the fortifications uncovered during the first season and the city within the walls. At that time, three complexes of casemate walls were found on the edge of the tell, all dating to various phases of the Israelite period. The uppermost complex was examined this season, and traces of a city gate were found. Within the gate a supporting structure was uncovered, as well as a paved courtyard. At a later period, this courtyard was covered to a height of one metre with an earth-filling, which had been brought from the foot of the tell and which contained a mixture of sherds of various periods. Above this filling, traces of a fairly large conflagration were found, which may be connected with the sack of the city. Above the conflagration layer were found the foundations of a large square building, perhaps a tower. On the edge of the acropolis, structural remains were also found. These may be sections of an inner wall, while the wall on the slope still served as an outer wall.

Area D (on the SE part of the high terrace at the foot of the acropolis). This season the expedition set itself the task of examining the depth of the occupation levels in this area and their stratification. For this purpose an excavation of 10 × 10 m. was made. Up to the present, four occupation levels have been uncovered, in addition to the seven levels already known from previous seasons, and virgin soil has not yet been reached at a depth of over 9 m. below ground. The upper three levels belong to the Early Bronze Age (I and II), while the eight lower levels belong to the Chalcolithic period (fourth millennium B.C.). In level VIII, a large, well-planned building was uncovered, with thick mud-brick walls still standing up to a height of over three metres.

Area F (at the foot of the acropolis, to the south). The stone wall uncovered here during the first season turned out upon examination to be the supporting wall of the glacis forming part of the fortifications. It should probably be dated to the latest Israelite fortification complex, because three superimposed floors found below this wall all belong to the Israelite period and are strewn with potsherds of the ninth to eighth centuries B.C.

Area I (on the highest point of the terrace of the tell). This area was first examined this season and structures were found which belong to the Middle Israelite period (tenth to sixth centuries B.C.).

The wide terrace which surrounds the tell (with the exception of the north side) was not consecutively occupied after the Early Bronze Age II (beginning of the second half of the third millennium B.C. at the latest). Here and there were traces of a Middle Israelite occupation, mainly

industrial installations located outside the settlement on the tell itself.

Four to five Middle Israelite levels, and two to three Late Israelite (Persian) levels on the tell itself were almost completely destroyed by the Early Arab cemetery on the acropolis. An Early Hellenistic level probably also existed and must have been similarly destroyed. There is some evidence that under the Middle Israelite levels there is an Early Israelite, and perhaps also a Late Bronze Age level.

As the finds so far do not support the identification of the site with Gath of the Philistines, the excavators propose, with due reservations, tentatively to identify it with Memshat, one of the four cities mentioned on the *lamelekh* jar-handles from the period of the Judean Monarchy.

(Communicated by the Department of Antiquities)

Makmish

The excavation site is near Herzliyah beach, north-east of Tell Makmish on the seashore (map-reference 13141744). Excavations were carried out on behalf of the Museum Haaretz, Tel Aviv, in co-operation with the Department of Archaeology of the Hebrew University; they were directed by Dr. N. Avigad.

In the course of the excavations the remains of a sanctuary were discovered, consisting apparently of a large room with a small chamber annexe at its northern end and a spacious courtyard on the east. The best-preserved part of the building was the plastered entrance wall facing east. In front of it were found the rectangular base of what presumably had been an altar, two plastered circular receptacles and an open plastered drain. Numerous votive figurines discovered inside and outside the building, miniature limestone altars and the like indicate the cultic character of the structure. Among the outstanding types of the figurines are long-bearded seated men, pregnant women, women holding an infant in their arms, etc. Their diverse styles show Persian, Phoenician, Cypriote, Egyptian, and Hellenistic influences. Pottery and coins found on the site and structural details point to a Persian date for the construction of the sanctuary and to radical alterations and re-use during the Hellenistic period.

Trial digging below the sanctuary revealed occupation levels of the Israelite period (10th-8th centuries B. C.) indicating an early cult tradition at this site.

(Communicated by N. Avigad)

Beth She'arim

The ninth campaign of excavation on this site by the Israel Exploration Society and the Hebrew University took place in August 1958, under the direction of Dr. N. Avigad. The main task was the clearance of the slope above catacomb No. 20. There a spacious open platform 15 × 15 m. was uncovered, surrounded on three sides by benches. It is reminiscent of a similar structure discovered previously above catacomb No. 14; both of them seem to have served as places for prayers and memorial meetings in honour of the dead buried in the caves below. Nearby a small surface cemetery came to light, unlike the catacombs which are the rule at Beth She'arim. One of these exterior graves yielded a well-preserved lead sarcophagus decorated with seven-branched candlesticks and other ritual objects.

Further clearance in catacomb No. 20 revealed some new ornaments carved on sarcophagi, as well as a number of Hebrew epitaphs, one of which mentions Rabbi Hillel ben Levi 'who made this cave'.

(Communicated by N. Avigad)

CONGRESSES

ISRAEL EXPLORATION SOCIETY FOURTEENTH ANNUAL CONVENTION: 'SAFED AND UPPER GALILEE'

Safed, 30 September — 2 October 1958

The First Session of the Convention was opened in the afternoon of 30 September by Prof. B. Mazar, Chairman of the Society. After greetings by Mr. J. Sprinzak, Speaker of the Knesset, Mr. A. Hacohen, Mayor of Safed, and Mr. Z. Shazar, Chairman of the Executive of the Jewish Agency, Mr. J. Aviram, Secretary of the Society, gave the 'Message of the Israel Exploration Society'. Then Prof. MAZAR read a paper on *Galilee of the Gentiles in the Biblical Period*, in which he marshalled the evidence of the archaeological explorations, especially Hazor, which complete that of the Bible and other written sources. He traced the way in which Canaanite settlements flourished in the 19th-13th centuries B.C. in the plains and the valleys surrounding Galilee and in the northern part of Upper Galilee, leaving the central wooded mountains largely untouched. In the 14th to 13th centuries, Israelite and kindred tribes infiltrated into these latter areas, the חרשת הגוים, which they rendered habitable by clearing the woods and introducing the use of plastered cisterns. After suffering from the Canaanite overlordship of Jabin, king of Hazor and his captain Sisera, the Israelites broke Canaanite power in two great battles at the Kishon and the waters of Merom, probably about 1200 B.C. The remaining wedges of Canaanite territory were conquered by David, and Galilee was integrated into Israel. Its area was extended northwards to Abel-Beth-Maachah and Iyon, until it could alone form four out of Solomon's twelve districts, an indication of its flourishing state. However, already in Solomon's time, Cabul was lost. Later centuries brought heavy Aramean pressure, which was withstood successfully. It was different with the Assyrians: Tiglath Pileser III in 733/2 B.C. annexed Galilee, which became the administrative district of Megiddo. But despite heavy losses of population through exile, enough Israelites remained in Galilee to serve as a nucleus for the revival of Jewish settlement there under the Maccabees.

In the Second Session on the same evening, presided over by Mr. S. Yeivin, three papers were read. Dr. M. AVI-YONAH spoke on *Jews and Greeks in Galilee*. Basing himself on four inscriptions found close to the borders of Jewish Galilee (one of which will be published in the next issue of this *Journal*), he suggested that even in the Hellenistic and Early Roman periods the true religion of the Gentiles surrounding Galilee was the old oriental-Canaanite faith. This explains the loathing felt for it (and its concomitant figurative art) by the Jewish leaders. With the decline of this faith in the third century A.D., the prohibitions of the *halakha* concerning art relaxed considerably. Dr. N. AVIGAD followed with a paper on *Ancient Syna-*

gogues in Upper Galilee. The synagogue buildings of the earlier type were basilicas oriented towards Jerusalem with an architecture and ornaments (including animal and human figures) clearly influenced in their origin by Hellenistic art in its Romano-Syrian phase (second-third centuries A. D.). Their style, however, developed into an independent demonstration of Jewish artistic creativity. A recent interpretation of an inscription suggests that some persons hitherto understood to be the donors of such buildings may in many cases have been their actual architects. Dr. H. Z. HIRSCHBERG read a paper on *The Beginnings of Settlement in Safed and its District*. The lecturer spoke on the period between the Arab conquest and the 15th century A. D. in which the Jews of Upper Galilee clung tenaciously to their villages. Rabbanites and Karaites lived peacefully together; among the people who sought refuge here was a Karaite 'Messiah' and the deposed Gaon R. Jacob; also the first refugees from Europe after the Crusader onslaught. Although Safed was a small townlet at the time, the rise there of a native Karaite poet shows that learning flourished there even then, anticipating the great revival of the 16th century.

On the morning of 1 October, members of the Convention divided into three groups to tour various parts of Upper Galilee; they visited ancient sites and geographical features.

The Third Session was held in the afternoon, Prof. D. H. K. Amiran presiding. The first paper was read by Z. SHIFTAN on *The Geology of Upper Galilee*. The lecturer pointed out the many recent faultlines in the area, which create numerous tectonic blocks. The geological formations date from the Lower Cretaceous upwards; in the mountain slopes to the east and west Eocene rocks are exposed; the Huleh and Jordan Valleys contain Upper Tertiary and Quarternary formations. Volcanic rocks (especially basalt) occur in the plateau areas of Upper Galilee. Mineral resources include bituminous limestone, phosphates, peat, and iron ores. The water resources are especially promising for the future. A. SHAHAR next lectured on *The Geomorphological Structure of Eastern Galilee*. After characterizing each of the various and multiform morphological units composing this area: the Ramim mountains, the Yiftaḥ and Yaḥmur plateaux, the Kadesh Basin, the Dishon Valley, the basaltic plateaux of Alma and Dalton, and the Safed mountain block, the lecturer summed up the characteristic morphological features of the area: plateau landscape formation due to wide-spread basalt covers; deep valleys resulting from the proximity of a low basis of erosion; drainage patterns influenced by tectonic structure; extensive karstic phenomena. Dr. G. ORSHAN continued with a paper on *Woods and Groves in Upper Galilee*. He described the climax plant communities in a west-to-east cross-section through Upper Galilee as follows: (a) the Carob and Mastix association dominates the coastal plain up to the 300 m. line; (b) the Kermes oak and Palestinian terebinth association (with the Cyprus oak variant in the highest spots) is dominant above this line; (c) the Atlantic terebinth and Almond dominate the higher eastern, and (d) Zizyphus lotus the lower eastern slopes; (e) the Syrian Christ Spine (Zizyphus Spina Christi) community is the most common in the Huleh

Valley; in addition, natural stands of the Aleppo pine community are found on grey chalky soil near Rosh ha-Niqrah, and stands of the Valonea oak community in the Huleh Valley. Prof. D. H. K. AMIRAN concluded the session with a paper on *Settlements in Upper Galilee*. He discussed the relation between the distribution of certain types of soil and of settlements; 70 per cent. of all existing villages are built on rendzina soil, which requires no expensive preparation and holds more water than terra rossa. Subsequently Jewish settlement preferred the more fertile terra rossa areas which were available for settlement, but require large-scale investments to clear the land and supply it with water. Fruit growing for export and the high price of water require careful calculation of agricultural possibilities.

The Fourth Session was held in the evening. Mr. T. Kollek, Director-General of the Prime Minister's Office, presided. The first lecturer was H. E. President I. BEN-ZVI, on *Safed in the Days of the Ottomans*. With the Jewish refugees from Spain who settled in Safed in the 16th century, Safed became a flourishing town in which 224 Jewish landlords were registered. At that time it was also the seat of learned Jews,—Joseph Karo for instance, the compiler of the *Shulḥan 'Arukh*—and of members of the kabbalistic movement (Shlomoh Molkho and others). It was in this town that the first printing press in the whole of Asia was installed (in 1577) and the first Hebrew book was printed (*Leqaḥ Ṭov*, by R. Yom-Ṭov Ṣahalon). Next Brig. Y. ALLON spoke on *Safed during the War of Liberation*. He gave a vivid picture of the seemingly desperate military situation of Safed and Upper Galilee at the outbreak of the war in 1948, and how the Jewish forces, aided by the civilian population, succeeded against overwhelming numbers of enemy forces and great odds, in liberating the town and the mountainous area up to the Lebanese border.

In the evening the members of the Convention, following an invitation by the Municipality of Safed, visited the artists' quarter.

The Fifth Session of the Convention, presided over by Mr. M. Sharett, opened at 9 a.m. on 2 October. The first lecturer was Prof. Y. TISHBI on *The Revival of the Kabbalah at Safed*. Taking as his point of departure the spiritual crisis brought about by the expulsion from Spain and the consequent decline of the philosophic tendency in Judaism, he described the parallel rise of the kabbalistic spirit, the creation of a spiritual-religious centre at Safed, and the factors governing its development (the 'sacred community', the groups of Kabbalists and 'repentant sinners', the new alignment in matters of religion and ritual). In contrast to Spanish Kabbalah, the movement in Safed became socially and publicly oriented and left its mark on Judaism for a long time. The lecturer analysed the prevailing tendencies of Kabbalah in Safed: the theoretical, the mystical, and the Messianic, stressing the importance of the latter for the rise of the Sabbataean movement. Prof. Y. PRAWER next read a paper on *Crusader Safed*. The strategic importance of the site on the road from Damascus to Acre caused King Fulk of Anjou to build a fortress there (1136-1140), which was subsequently handed

over to the Templars, and stood a long siege before surrendering to Saladin. When Galilee became Crusader again in 1240, its fortifications were enormously strengthened on the initiative of Benedict of Alignan, bishop of Marseilles. It became the largest Crusader fortress (40 dunam = 10 acres in area) and was manned by a garrison of unparalleled strength (1700 men in peace time, up to 2200 in war). Only after prolonged assaults could Baybars put an end to it, and replace its garrison with Mamluks. Mr. Y. Braslavi continued on *The Early Traditions Concerning Meiron and Peqi'in*. The traditional worship of holy graves, which already existed in the period of the Second Temple, was revived and reinterpreted by the Kabbalists. Thus at Meiron the custom of praying for rain at Passover at the traditional tomb-cave of Hillel and Shammai (because in these caves water percolated into the sarcophagi), was replaced by the festival in honour of R. Shime'on bar Yohai held on Lag be-'Omer. At Peqi'in a vague tradition identifying the place of concealment of this sage and of his son with a Beqa' (or 'Peqa') caused the replacement of traditions concerning R. Yosi of Peqi'in and R. Joshua ben Hanania; Beqa' was identified with Buqe'ia, which began to be called Peqi'in in the 18th century. The Session concluded with reports from Dr. N. Avigad on the 1958 season at Beth She'arim and Dr. Y. Yadin on the season at Hazor (reports on these excavations will be published separately in a forthcoming issue of the *Journal*).

In the afternoon the members of the Convention were taken on a conducted tour of the excavations at Hazor. The archaeologist in charge of each excavation area explained the season's work.

In the evening the Sixth and Concluding Session was opened in the amphitheatre of Ayyelet ha-Shaḥar, Dr. A. Biran presiding. It was devoted to a symposium on the results and interpretation of the Hazor finds and their relation to the biblical story of Joshua ix and Judges iv-v. After Mr. Sheffer, a member of Kibbutz Ayyelet ha-Shaḥar, had welcomed the Convention, the symposium was opened by Dr. Y. Yadin. He and the following three lecturers discussed the date of *The Destruction of the Last Canaanite City of Hazor*. In Yadin's opinion the last two strata of the Late Bronze Age II of the lower city (IB-IA) correspond to the two last LBII strata of the mound proper (strata XIV-XIII). Since the earlier stratum was founded in the el-Amarna period (Late Helladic III A pottery) and destroyed in the first half of the 13th century B.C., and the latest stratum (XIII=IA) also came to an end in the 13th century B.C., we have here clear evidence that the destruction of Hazor described in Joshua xi took place in that century. If the city corresponding to strata XIV=IB is the one in question, the event should be dated to the beginning of the 13th century; if, however, the city corresponding to strata XIII=IA is the one referred to in Joshua xi, the date should be fixed in the second half of that century. In either case, both Garstang's previous statement that Hazor was destroyed in the 15th century B.C. and Aharoni's theory that the event took place towards the end of the 12th century B.C. prove to be untenable. The first Israelite settlement, found above the ruins of the Canaanite city but below the Solomonic

one, has pottery resembling that of the Israelite sites in Galilee of the 12th century B. C. The Israelite settlement of Galilee should therefore be dated after and not before the fall of Hazor.

Dr. Y. AHARONI cited the evidence of the biblical, extra-biblical, and archaeological sources, expressing the opinion that in Galilee too settlement in the wooded mountainous areas preceded the intrusion into the Canaanite valleys. In his view, the battle of Deborah preceded the conquest of Hazor, which was destroyed only during the period of the Judges. The excavation of Hazor should have provided this date, and not vice versa; but there are not yet enough data to enable us to fix an accurate date for its destruction. In any case, there is no reason to believe that Canaanite Hazor was destroyed earlier than some time during the twelfth century B. C., because the stratum with Late Helladic IIIB pottery is followed by one or probably even by two Canaanite strata. On the ruins of Canaanite Hazor — which confirms the story of Joshua xi that it was the only Canaanite city destroyed in Galilee — Israelite settlers built the temporary stratum XII. The pottery there, which is derived from Canaanite prototypes and evidences already certain beginnings of independent material culture, refutes the theory that Hazor was taken at the beginning of the Israelite conquest. TRUDE DOTHAN spoke on the Late Bronze pottery at Hazor and the date of the final destruction of the Late Bronze city. Both the locally made ware and the Mycenean and Cypriote imports show that the final date of the Canaanite settlement cannot be lower than the end of the 13th century B. C. RUTH AMIRAN spoke on the pottery of the Early Israelite levels (XII and XI) discovered in the 1958 season and its interestingly close relationship to the typical 'Israelite' pottery which was isolated by Albright in the corresponding strata on the sites of Mount Bethel (Bethel, Ai, Gibeah) and at Megiddo. Both levels XII and XI seem to fall within the period of Megiddo stratum VI (c. 1140 — c. 1000 B. C.). On stratigraphical grounds she saw no reason for a noticeable gap between the last Canaanite stratum on the tell (XIII) and the Israelite settlement of XII.

Dr. A. MALAMAT spoke on *Hazor — the 'Head of all those Kingdoms' — in the Light of Some Recent Documents.* The Mari archives (first third of the second millennium B. C.) contain some references to Hazor, which is the only Palestinian city mentioned there. There is evidence of diplomatic and commercial relations between Mari and Hazor and even between Hazor and Babylon. Hazor also appears in a Babylonian 'dream book' as the last station in the west on the road from southern Mesopotamia. In the Mari documents, moreover, the king of Hazor bears a Babylonian name. All this is in accordance with the archaeological evidence of the erection of an important lower city at Hazor in the Middle Bronze Age II (for the discovery of a cuneiform inscription bearing a Babylonian name, cf. *IEJ*, 7, 1957, p. 122). This outstanding position of Hazor seems to be echoed in the statement in Joshua xi, 10 that Hazor '*beforetime* was the head of all those kingdoms', i.e. a fairly long time before the Israelite conquest. Dr. H. TADMOR followed on *Hazor in the el-Amarna Letters.* The el-Amarna archives contain two

letters from the king of Hazor protesting his loyalty to Pharaoh, and several from his rivals accusing him of enlarging his territory in league with the Habiru. Hazor came to power during the early years of Amenophis IV and seems to have declined during his last years. The reference to the king of Hazor leaving 'his house' and joining the Habiru has to be related to the pressure exerted on Hazor by the rival cities in Galilee at the close of the el-Amarna period (c. 1360-1350 B.C.). Next Father R. NORTH spoke on *Hazor and the Settlement of Asher*. He opposed the assumption that Asher was pushed out of Galilee to the north-western sea-coast by the power of Hazor, as there is no independent evidence to that effect in the list of Asher cities in Accho Bay. Dr. M. HARAN spoke on the *Biblical Tradition of the Conquest of Hazor* (Joshua xi, 1-15). He analysed the biblical story as consisting of two parts: an account of the battle by the waters of Merom (vv. 1-9), and a brief summary of the fall of Hazor and its satellite cities in the Deuteronomistic style (vv. 10-15); the latter, however, reflects earlier traditions. Three facts emerge from the biblical story: (a) Hazor was the chief city of a large area, probably from the beginning of the second millennium B.C.; (b) it underwent not only sacral destruction *(ḥerem)*, like all the other cities conquered by the Israelites in Canaan, but was completely destroyed by burning; (c) its fall was related to Joshua himself, and the whole conquest of Canaan is thus represented as a continuous operation. In the lecturer's opinion the archaeological results of the excavations fully confirm these facts, especially as the date of Hazor's fall coincides with the fall of Lachish, Debir, and other cities in the centre of the country. Dr. S. TALMON cast doubts on the identification of Tell Waqqaṣ with Hazor of Joshua xi and Judges iv. He agreed with its identification with Canaanite and Solomonic Hazor. He asked how it could be explained that the Israelites conquered this great fortress in a straightforward attack, while the conquest of Jericho, a much lesser city, required divine assistance. Further doubts are aroused by the story in the book of Joshua according to which the conquest of northern Palestine preceded the conquest of the central mountain ranges. In Talmon's opinion, Joshua's conquests stopped short of Galilee, and Hazor should be located — with Kadesh — somewhere near Mount Tabor. Dr. M. NAOR opposed the opinion that the Israelite settlers in the Galilee mountains occupied these areas first, before descending into the plains; the analogy with Ephraim (Joshua xvii, 14-18) is false, for in Ephraim settlement in the mountains followed upon the conquest of the whole territory. With regard to the difficulties connected with the battle of Mount Tabor and the alleged revival of Hazor after its destruction by Joshua, Naor proposed to return to the interpretation of R. D. Qimḥi, who explained Judges iv, 2 as referring to Jabin 'that reigned in Hazor' in the past, i.e. who resided in Haroshet ha-Goyim after the destruction of his capital by Joshua (xi, 11). *The Problems of the Israelite Conquest* were summed up by S. YEIVIN. Basing himself on four documents: 1. the records of Seti I (1311-1290 B.C.) mentioning Asher, 2. the second stele of Seti I

alluding to Issachar (?); 3. the stele of Merneptah (1221 B.C.) referring to a settled Israel; 4. the records of Ramses II referring to an Amorite invasion after the battle of Kadesh (1285 B.C.), the lecturer described the process of the conquest as a lengthy one, occurring in several stages: (a) Asherite and perhaps Naphtalite elements infiltrating into Galilee by the Beth Shean gap close to the end of the 14th century B.C.; (b) the Leah tribes entering by way of Thebez (?) near the beginning of the 13th century B.C.—this event being perhaps connected with the activity of Moses; (c) the invasion, led by Joshua son of Nun, of the Rachel tribes, who defeated the Amorite Sihon and took Jericho. Later events include the fall of Hazor (in the period between the 18th year of Ramses and the third year of Merneptah) and a few years afterwards the battle with Sisera, leader of the remnants of the Hazorite host; then the conquest by David of Jerusalem (1000 B.C.), and the elimination of the remaining Canaanite enclaves (996-991 B.C.). Summing up the discussion of the symposium, Prof. B. MAZAR closed the Convention. He pointed out *inter alia* that the excavations at Hazor greatly advanced our knowledge of the Late Bronze Age in Palestine and confirmed the biblical story of the complete destruction of Canaanite Hazor; but no definite solution has yet been found to the problem of the absolute chronology of this destruction. In his opinion, his earlier assumption based on a comparison of Joshua xi and Judges iv, as put forward in the *Hebrew Union College Annual*, 24, 1952-53, pp. 81-84, still deserves consideration, namely that Hazor was destroyed some time after the battle of Deborah, i.e. at the beginning of the 12th century B.C. This supposition is, however, connected with the general archaeological question of the end of the Bronze Age in Palestine.

The Seventh International Congress of Classical Archaeology was held in Italy (Rome and Naples) from 6 to 13 September 1958. Dr. P. P. Kahane, representing the Israel Ministry of Education and Culture, read a paper on *Classical and Local Art in the Ancient Land of Israel;* Mr. B. Kanael lectured on the *Excavations of Khirbet Qumran.*

Prof. M. Stekelis of the Hebrew University represented Israel at the Fifth International Congress on Prehistory and Protohistory at Hamburg, held from 24 to 30 August 1958. He lectured in two sessions on the Mesolithic and the preceramic Neolithic cultures at Naḥal Oren.

VARIA

An exhibition on *Ten Years of Archaeological Activities, 1948-1958*, was opened at the Museum of the Israel Department of Antiquities on 27 May 1958 by Mr. Z. Aranne, Minister of Education and Culture.

A UNESCO mission, consisting of Messrs. P. Bellew, A. Schutz, and M. Dolfi visited Israel in July-August 1958 in connection with a forthcoming volume to be published in the *UNESCO World Art Series* on mosaic pavements in Israel. The UNESCO Committee of the Ministry of Education and Culture co-ordinated the activities of the mission, assisted by members of the

Department of Antiquities and the Department of Archaeology of the Hebrew University. The mission toured the country and photographed in colour the mosaics selected for this volume.

During the winter season a series of lectures on new excavations was arranged at the Department of Antiquities. The series opened on 5 December 1958 with a lecture by Mr. S. Yeivin, Director of Antiquities, on the 1958 season of excavations at Tell Gath. Simultaneously with each lecture exhibitions of objects found at the excavation sites were held at the Department's museum.

The fifth volume of *Eretz-Israel*, dedicated to Prof. B. Mazar on the occasion of his fiftieth birthday, was presented to him at a meeting held at the residence of H. E. the President of Israel on 25 September 1958 under the auspices of the Israel Exploration Society. Among the speakers were H. E. the President, I. Ben-Zvi, Prof. N. H. Tur-Sinai, Mr. S. Yeivin, Prof. E. A. Urbach, Dr. Y. Yadin, Dr. H. Tadmor, and Mr. J. Aviram. Prof. Mazar replied.

PERSONAL NEWS

The following appointments and promotions have been made at the Hebrew University at Jerusalem:

Prof. J. Prawer
from Associate Professor to Professor of Medieval History;

Dr. M. Avi-Yonah
from Lecturer to Associate Professor of Roman and Byzantine Archaeology;

Dr. S. Abramson
to be Associate Professor of Talmudic and Rabbinical Literature;

Eng. I. Dunayevsky
to be Teaching Fellow in Archaeological Surveying.

OBITUARY

Joseph Klausner, who died on 27 October 1958, was born in Russia in 1874; he received his education in Judaica at the Yeshiva of Odessa and completed his studies with a Ph. D. at Heidelberg. He joined the Hebrew University in 1925 as Professor of Modern Hebrew Literature, and later was appointed in addition Professor of the History of the Period of the Second Temple, holding both chairs simultaneously until his retirement in 1948.

Besides his scholarly activities, Prof. Klausner took an active part in the public life of Jewish Russia, of the Zionist movement, and of Israel. He was the editor of *ha-Shiloaḥ*, the Hebrew monthly founded by Aḥad-Haam, from 1903 to 1926; from 1942 to 1955 he was one of the heads of the Hebrew Language Committee, and afterwards of the Hebrew Language Academy; he was also editor-in-chief of the Hebrew Encyclopaedia. He was the last survivor of the First Zionist Congress (Basle, 1897).

His researches can be grouped under three main headings: the Messianic movement (including his best-known work, a *Life of Jesus*, followed by a sequel *From Jesus to Paul*); the history of the Second Temple period; and the history of Hebrew literature since the 18th century. In both these fields he left monumental works: five volumes on the former and six on the latter subject. Prof. Klausner was always equally distinguished by his learning, by his diligence in work, and by

his affability towards his younger colleagues, most of whom are indebted to him in one way or another.

CHESTER CHARLTON MCCOWN (1877-1958) was born in Orion, Ill.; after pursuing his studies in America and Germany, he obtained his Ph. D. at Chicago in 1914. He was a Methodist Episcopal minister from 1898, and a University teacher from 1909 onwards. In 1914 he became Professor of New Testament Literature and Interpretation at the Pacific School of Religion in Berkeley, California, a position which he held until his retirement in 1947. From 1936 to 1947 he acted as Director of the Palestinian Archaeological Institute of the School. In 1920-21 he visited Jerusalem as Thayer fellow of the American Schools of Oriental Research, returning as director in 1929-31 and as annual professor in 1935-36. During his terms of duty in Jerusalem Prof. McCown was joint director of the excavations at Gerasa (1930-31) and a member of the Archaeological Advisory Board of the Mandatory Government (1929-31, 1935-36). He wrote several books on archaeology, the best known of which is *The Ladder of Progress in Palestine*, and participated in the excavation reports on *Tell en-Naṣbeh* and *Gerasa*.

REVIEWS

Rabin, C.: *The Zadokite Documents*. I. *The Admonition;* II. *The Laws*. Edit. with a transl., 2nd revised edition. Clarendon Press: Oxford, 1958. xvi+103 pp. 25 s.

Scholars who like to pontificate about the importance and difficulties of textual criticism should be made to read the *Zadokite Documents* (usually called the 'Damascus Covenant') as a penance. There they will find a wealth of obvious (and some less obvious) scribal errors, queer spellings which may or may not signify great truths in morphology and orthography, maddening omissions, parallel readings, etc. The reason for all this is that, as long as the Qumran fragments of the work remain unpublished, we are obliged to use a mediaeval copy of a book written by a member of the Qumran sect. Other writings of the sect, written and copied while the sect existed, are far easier to read.

Professor Rabin's edition removes as many difficulties as can be removed by comparison with other Qumran writings and by general philological method. It is first and foremost a competent piece of workmanship, whose main merit lies in the technique of editing. The second edition, appearing so comparatively soon after the first, shows that his efforts have been appreciated. This 'revised' edition has been altered in a few places only, but there are three and a half pages of additional notes at the end. The changes are mainly, but not entirely, due to newly-published material. There is also a new appendix, in which the texts of MSS. A and B are printed separately (they had been combined in the edition proper).

Rabin has wisely restricted the scope of his work. His notes deal almost exclusively with details of interpretation and language, and he also gives references to

other Qumranic literature, to the Bible, talmudic literature, etc. All the comment one can offer on this kind of work is to take up a few points of detail.[1]

The expression 'I shall uncover your ear' is significant, because it occurs several times in T (T. i.21; vi.4 etc.) and in the theologically interesting passage W. x.11. A cross-reference is missing from i.19 to iv.7, cf. D. v.7. The right to speak to the overseer, xiv. 11, should be compared with other rights to speak in D. vi.12 and D*.ii.13; the situations are quite dissimilar, but the formulations are exactly parallel. Rabin's paragraph division in i.12-13 severs the obvious connection between 'the last generation' and 'that is the time', and makes nonsense of the *pesher* which is worked into the text in between. The usage of לכפר בעד does not occur 'only Ex. 32,30' in the Bible, as Rabin remarks *ad* iii. 18. The rendering 'and let him appease the people in a few words' (ק[ו]יש, xx.24) is very problematical indeed; to base it on D. x.25 is almost a case of *ignotum per ignotior*. Finally, it is quite unnecessary to emend in D. i. 13 לא לצעור to לא, and to interpret Z. xx. 20c accordingly, as Rabin suggests on p.101 of this edition. The phrase occurs also in D. iii. 11, and is perfectly understandable and logical, though non-biblical.

All this is very small change indeed; it only shows that, when interpreting a Qumranic writing, one's job is never done. It should be borne in mind, however, that Rabin is not offering a full-scale commentary. Much remains to be done on these texts: the style and literary composition of the work should be examined, and definitions should be worked out for the *halakhah*, the social structure, and the theology of the Documents. Points of contact with other scrolls are not only to be recorded, they are also to be interpreted, and the differences stated. All this is not a subject for a grandiose study, but rather necessary groundwork for the plain understanding of the *Zadokite Documents*.

Rabin has a few very penetrating and useful remarks on these problems in his Introduction, but they are much too short. Some further interesting remarks of his are scattered among the notes (e.g. on p.47)—but they do not link up. He was however perfectly right to limit the scope of his work; otherwise we should be still waiting for a usable edition of the text. The sad truth is that we shall probably have to wait for quite a time for the next step. Until then, we remain in Rabin's debt.

J. LICHT

[1] I shall use Rabin's *sigla*, to avoid confusion; his book has in any case to be consulted, if these remarks are to be understood.

The Dating and Meaning of Ancient Jewish Coins and Symbols: Six Essays in Jewish Numismatics. (Numismatic Studies and Researches, II.) Jerusalem: Schocken Publishing House, 1958. 116 pp., 1 Plate. 8°. IL 5.400.

The first volume of these 'Studies and Researches' was published in 1954 in Jerusalem, being mainly a reprint of numismatic material originally published in *IEJ*, 4, 1954. The present volume summarizes the researches of a number of numismatists, each in his special field, which will be incorporated in the near

future into the *Corpus Nummorum Palaestinensium*. A. Kindler deals in the present volume with the coins of the Hasmoneans and with those of the Bar-Kokhba War, L. Kadman with the coins of the Jewish-Roman War and with the development of Jewish coinage in general, J. Meyshan with those of the Herodian dynasty, while E. W. Klimowsky contributes an essay on the symbols on ancient Jewish coins. This little volume contains much more than its sub-title leads one to expect, and it may well be looked upon as a useful general guide to Jewish numismatics, until it is replaced by the *Corpus*.

Just because of this it seems deplorable that the authors found it necessary to expend much valuable energy and erudition in the refutation and correction of a book on ancient Jewish coins recently published.[1] It is also a pity that some further technical information has not been added to the description of the coins—their sizes, for example, and their weights. Although it is well understood that these essays neither claim to nor will replace a systematic corpus, they can meanwhile surely serve as a sort of handbook for everyone interested in Jewish numismatics. The lack of such elementary data will therefore be doubly felt, as the late Prof. A. Reifenberg's *Ancient Jewish Coins* (2nd ed. Jerusalem, 1947), which is here constantly referred to, lacks these data as well, while Hill's book[2] is practically unobtainable.

On minor points, one may add to the statement about the use of the seven-branched candlestick before the destruction of the Second Temple (p. 90) that, besides its appearance on the coin of Mattathias Antigonus, it is also depicted on the wall of a tomb in Jerusalem, where it cannot be later than A.D. 31 (cf. *IEJ*, 6, 1956, pp. 127-128). One may also be forgiven, perhaps, for taking issue with Mr. Kadman on his reference to the use of pearl-rimmed cups in the religious service of Jewish families in the last century (p. 55). He takes this as additional evidence for the identification of the symbol on the shekel of the Jewish War with a chalice, whereas the identification surely stands without that late and obviously irrelevant instance.

Such blemishes, however, do little to lessen the value of these studies. For the sake of the many local collectors, curators of local museums, and teachers, one would suggest that these essays be translated into Hebrew, possibly in an abridged and corrected form.

L. Y. RAHMANI

[1] W. Wirgin & S. Mandel: *The History of Coins and Symbols in Ancient Israel.* New York, 1958.
[2] G. F. Hill: *A Catalogue of the Greek Coins in the British Museum: Palestine.* London, 1914.

LETTERS TO THE EDITOR

THE EDITOR,
ISRAEL EXPLORATION JOURNAL

Sir,

I wish to comment on the article 'The Jaffa Hoard of Alexander Jannaeus' by A. Kindler (*IEJ*, 4, 1954, pp. 170-185) and in particular on Mr. Kindler's attempt to prove that these coin types were not minted in Jerusalem. According to Mr. Kindler, 'among the coins left by the late Mr. Shahor of Jerusalem ... only 1% of all the coins of Alexander Jannaeus were of the type discussed here' (p. 184). This proof I must contradict.

I was very friendly with the late Mr. Shahor of Jerusalem in the last years of his life; he came to me practically daily to show me his latest acquisitions, and I was fairly well acquainted with his business.

As I was already then engaged in an investigation of the Alexander coins, I bought several hundred of this particular 'imitation' type from the stock of Mr. Shahor. As a matter of fact, I could have obtained from him practically any quantity desired.

Mr. Shahor repeatedly told me of the steady demand for 'Mites' from cloisters and churches in town. It looks as if he or his family disposed of the remaining 'Mites' to these institutions.

Mr. Kindler mentions several collecton who have collections of 'Mites'. None of them is in Jerusalem. Still, it is well known that the 'coin-producing' part of Jerusalem was mainly the one inhabited by Arabs. Now, according to American friends in the Old City of Jerusalem, 'they (i.e. the Mites) are still very common there'.

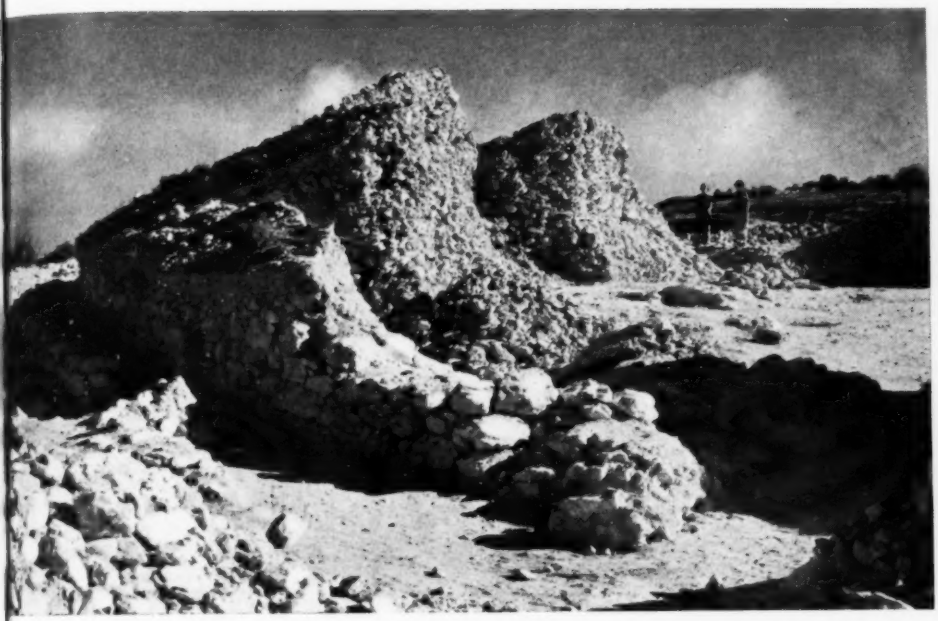
Very truly yours,
10 April 1957 WOLF WIRGIN

THE EDITOR,
ISRAEL EXPLORATION JOURNAL

Sir,

In reply to Mr. Wirgin's letter of 10 April 1957, I must state that Mr. Wirgin disregards the archaeological finds which were listed in my article, and which show no important occurrence of the Alexander *lepta* in the Jerusalem area. Therefore the theory that these coins were struck in Jaffa or another coastal town should be accepted, until authentic finds in the Jerusalem area disprove it.

Very truly yours,
28 July 1958 ARIE KINDLER



A: Tumulus 5, partly excavated, looking NNE.

B: Tumulus 5: Part of the ring-wall, showing angles 3 and 4.

A: Tumulus 4, looking east.

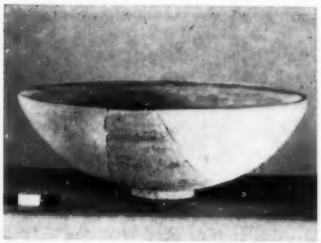
B: Tumulus 5: East entrance and stairs.

C: Tumulus 5: The pit.

A: Tumulus 5: The platform, the pit, the pavement and the rampart (the latter two partly removed).

B: Tumulus 5: The platform seen from the east. In the foreground the supporting wall.

A



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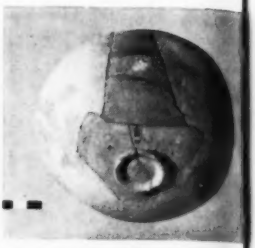

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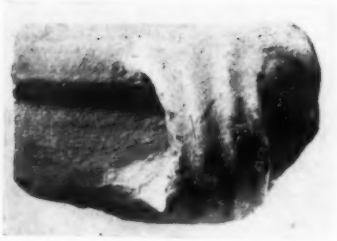

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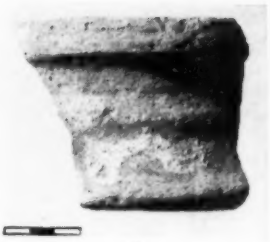


E

F

G

A-G: Pottery.

A: High cooking pot. B-C: Bo

D: Part of deep folded rim bowl.

E: Part of ring-stand.

F: Handle with potter's mark.

G: Ring-burnished fragments of bowls

H

I

J

H-I: Side and front view of the seal, twice original size.

J: Seal impression.

A: Air photograph of fort A (area A) and surroundings. Note the houses Nos. 9 and 10 on both sides of the cistern (No. 1 in Fig. 4) indicated by an arrow and the channels leading to it.

B: House No. 9 (area A) looking south.
Note the two pillars in the centre, one standing and the other lying behind it.

Air photograph of part of Mishor ha-Ruah. Note the terrace walls in the bottom lands and the cisterns and channel dug in the marly formation.

Air photograph of part of area A with forts A and B. The eight cisterns are visible as small black dots at the foot of the cliff.

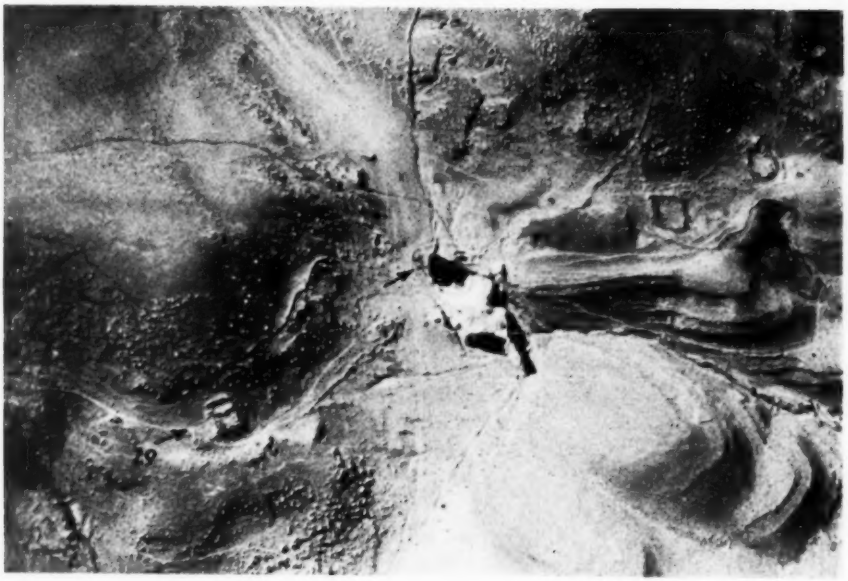
A: Open stone-lined cistern.

B: In the foreground: a stone-lined cistern.
Note the two channels leading into it from either side and the cultivated fields in the central background.

A: Air photograph of farm F (area B). Note the stone fence surrounding the farm unit, the farmhouse (No. 26) and the two cisterns indicated by black arrows.

B: House No. 26 (farm F) partially excavated, looking NE. Note the two pillars still standing *in situ*.

C: Stone pillar from house No. 26.



A

B

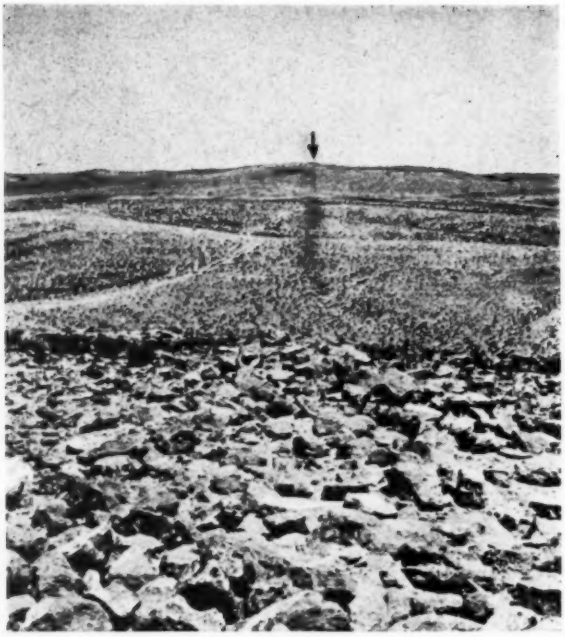
A: Air photograph showing fort E building No. 29 and surround ings (area E). Note the big cis tern in the centre (No. 3—cf. Figs. 21 and 24) indicated by an arrow, and the two corrals on the upper right.

B: Air photograph of farm J (area E) and surroundings. Note cis terns indicated by arrows.

A: Circular Middle Bronze Age I stone structure belonging to site No. 37 near Har Ramon.

B: Group of circular MB I structures at the eastern end of the K-line.
Note the triangulation marker in centre background.

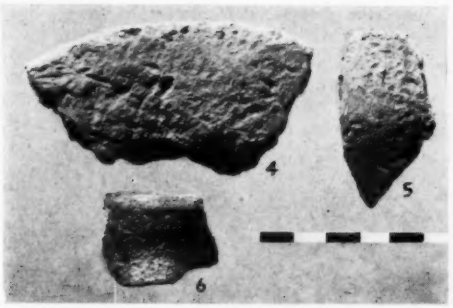
C: Part of open cistern. Note the steps leading into it (left of centre).



A

A: The K-line as seen looking east fr
Rosh Horshah. On the photogra
it appears as a shaded straight li
leading to Har Ramon (indicat
by arrow).

B: Circular Middle Bronze Age I stu
structure (area E) excavated
Beduin for grain storage.



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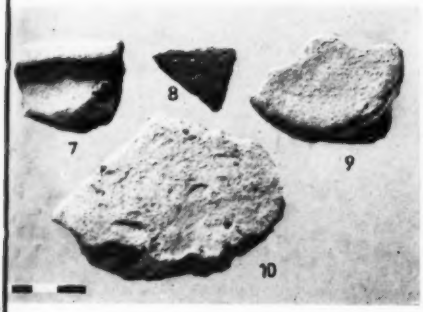
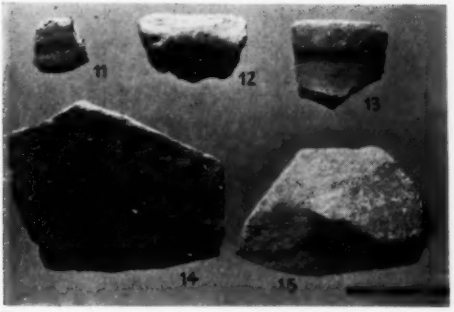




D

A-E: Iron Age pottery from area A.

A: From house No. 9.

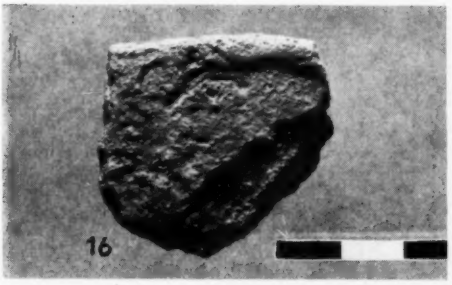
B: From house No. 10.

C: From fort A; sherd No. 8 wheel-burnished.

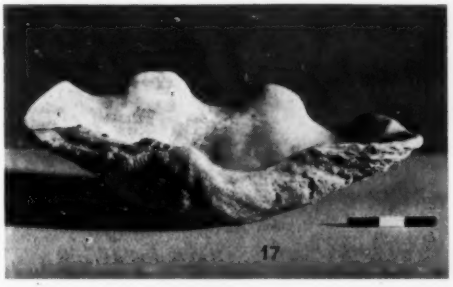
D: From house No. 14.

E: From fort B.

F: Sea-shell from house No. 26 (farm F, area B).

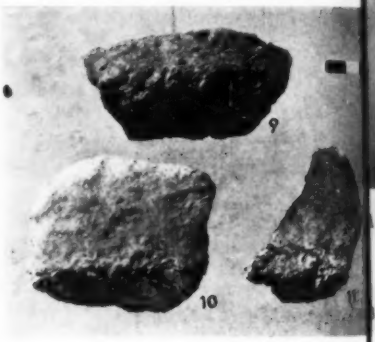


E



F

A



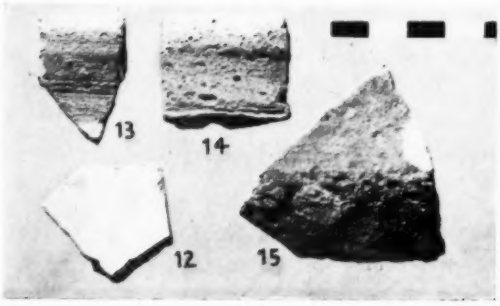
C

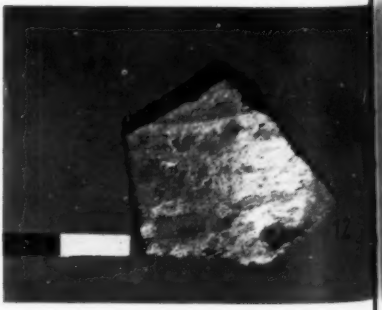
A-F: Iron Age pottery from house No. 26 and surroundings (farm F, area B).

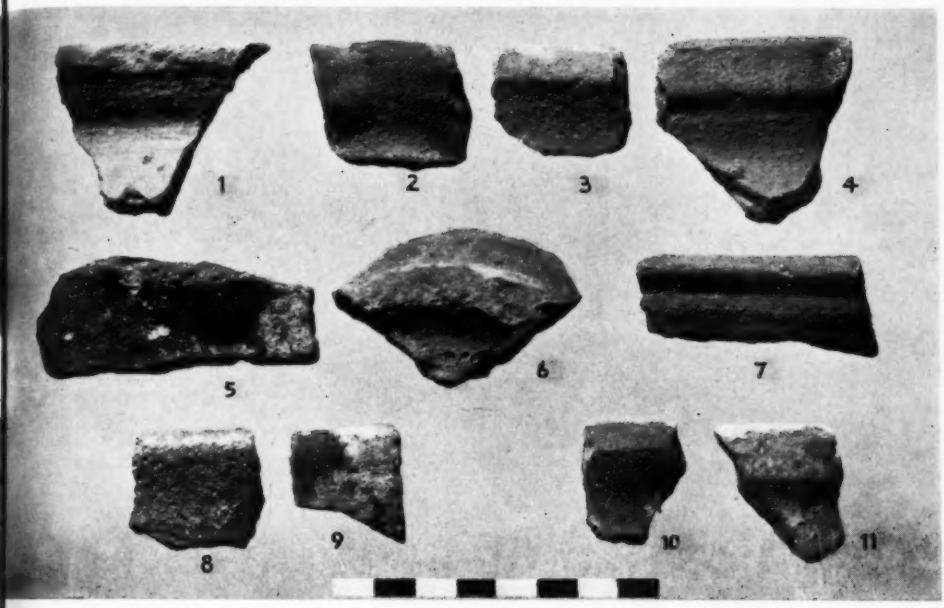
A-D: Local handmade pottery.

E-F: Wheel-made Judean pottery, sherd No. 12 wheel-burnished.

E

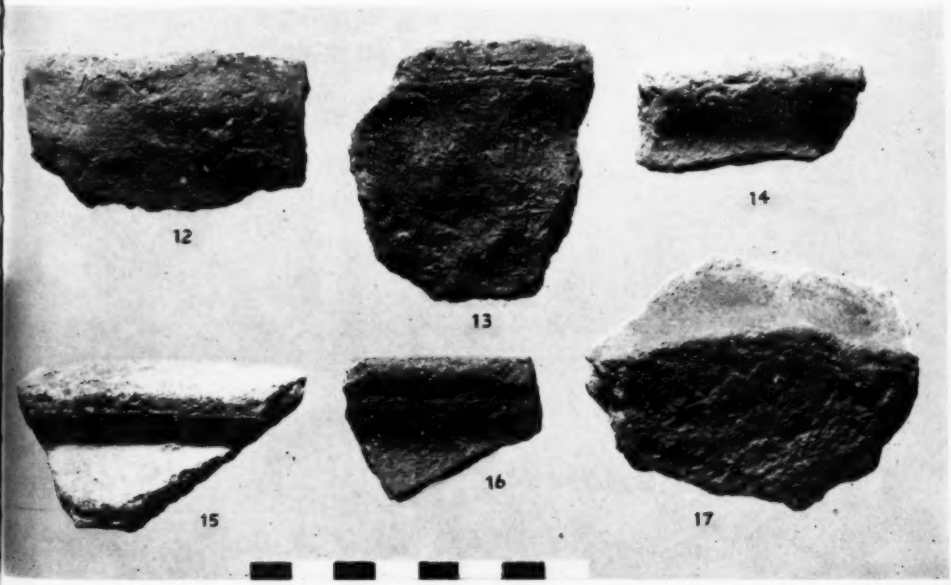






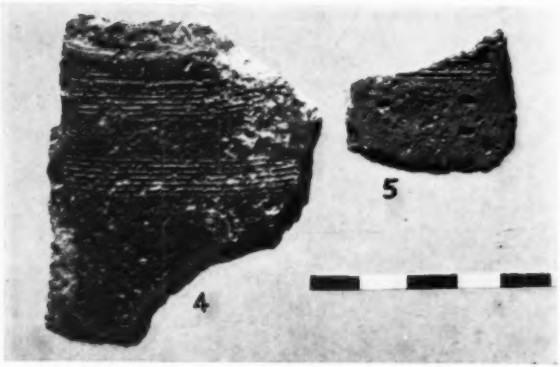
A-B: Iron Age pottery from fort D and houses No. 40 nearby (area D).

A: Wheel-made Judean pottery.
B: Local handmade pottery.



A: From site No. 37.

B: From site No. 38.



C: From site No. 15.

D-F: From site No. 33.

E

F

A-F: Middle Bronze Age I pottery and stone implements.

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THIS JOURNAL *publishes (in the original English or French, or in translation from Hebrew) papers from contributors in Israel and other countries on the following subjects: ancient—especially biblical—history and archaeology; the history and archaeology of later periods; the geography, geology, soil science, and natural history of Israel and the Near East.* The Editors are not responsible for opinions expressed by contributors.

ABBREVIATIONS

AAA	Annals of Archaeology and Anthropology
AASOR	Annual of the American Schools of Oriental Research
ADAJ	Annual of the Department of Antiquities of Jordan
AJA	American Journal of Archaeology
'Alon	Bulletin of the Israel Department of Antiquities
'Atiqot	'Atiqot, Journal of the Israel Department of Antiquities
BA	The Biblical Archaeologist
BASOR	Bulletin of the American Schools of Oriental Research
BIES	Bulletin of the Israel Exploration Society, continuing:
BJPES	Bulletin of the Jewish Palestine Exploration Society
CRAI	Comptes-rendus de l'Académie des Inscriptions et Belles-Lettres
EI	Eretz-Israel: Archaeological, Historical and Geographical Studies, published by the Israel Exploration Society
IEJ	Israel Exploration Journal
JBL	Journal of Biblical Literature
JNES	Journal of Near Eastern Studies
JPOS	Journal of the Palestine Oriental Society
PEFA	Palestine Exploration Fund Annual
PEQ	Palestine Exploration Quarterly, continuing:
PEFQSt	Quarterly Statement of the Palestine Exploration Fund
PJb	Palästinajahrbuch des Deutschen evangelischen Instituts für Altertumswissenschaft des Heiligen Landes zu Jerusalem
QDAP	Quarterly of the Department of Antiquities in Palestine
RB	Revue Biblique
VT	Vetus Testamentum
ZDPV	Zeitschrift des Deutschen Palästina-Vereins

MT	Massoretic Text of the Old Testament

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